Sport Psychological Skills Training of South African Provincial Netball Players

Zelna van den Heever (12862134)
B.A. Honns. (Sport Science)

DISSERTATION SUBMITTED IN PARTIAL FULLFILMENT OF THE REQUIREMENTS FOR THE M.A DEGREE IN THE SCHOOL OF BIOKINETICS, RECREATION AND SPORT SCIENCE IN THE FACULTY OF HEATH SCIENCES AT THE NOTH-WEST UNIVERSITY (POTCHEFSTROOM CAMPUS)

Supervisor: Mr. Heinrich Grobbelaar
Co-supervisor: Dr. Johan Potgieter
Potchefstroom
December 2006

Foreword

I would like to express my sincere appreciation to the following people:

- ☺ My supervisor, Mr. Heinrich Grobbelaar, who has guided me throughout the completion of my masters' study. Thank you for your dedication and contribution.
- ☺ My co-supervisor, Dr. Johan Potgieter, for his input and participation in my research.
- ☺ The u/19, u/21 and senior South African provincial netball players who participated in my research study.
- ☺ To all of the coaches who involved their players in the study.
- ☺ The South African Netball association who agreed to the testing during the Interprovincial Netball Tournaments of 2004.
- ☺ To my family, especially my parents Kennedy and Ina, whose interest and support assisted me during this time as well as Eduan Erasmus' support and understanding.
- ☺ To Engela van Nieuwholtz for the graphic editing.

Declaration

The co-authors of the two articles, which form part of this dissertation, Mr. Heinrich Grobbelaar (supervisor) and Dr. Johan Potgieter (co-supervisor), hereby give permission to the candidate, Miss. Michelle Andrew to include the two articles as part of a Masters dissertation. The contribution (advisory and supportive) of these two co-authors was kept within reasonable limits, thereby enabling the candidate to submit this dissertation for examination purposes. This dissertation, therefore, serves as partial fulfillment of the requirements for the M.A. degree in Sport Science within the School of Biokinetics, Recreation and Sport Science in the Faculty of Health Sciences at the North-West University (Pothefstroom campus).

Mr. Heinrich Grobbelaar
Supervisor and co-author

Dr. Johan Potgieter
Co-supervisor and co-author

Summary

The importance of sport psychological skills training is emphasized by the contention that the knowledge obtained through observing an athletes' behaviour within a sporting environment could be used to explain, predict and change behaviour, thereby, enhancing sport performance. Sport psychological factors are being recognized as one of the most significant contributors to sport performance. Three hundred and fourteen provincial netball players (average age = 20.30 ± 3.88 years) from 33 teams who participated in the 2004 South African Inter-Provincial Netball tournament completed the Competitive State Anxiety Inventory-2 (CSAI-2), Athletic Coping Skills Inventory-28 (ACSI-28) and Psychological Skills Inventory (PSI). Results from the first article revealed that this population had limited prior exposure to sport psychological skills (SPS) and sport psychological skills training (SPST) programmes in general. The skills to which these players have primarily been exposed to are self-confidence, positive self-talk, team cohesio/spirit, goal-setting and concentration skills. The players further perceive SPST to be very important and expressed a need thereof, especially since 26.43% of the players perceive their ability to be psychologically well prepared for competitions as average or below average. A comparitive study between more successfull and less successful groups of u/19 and u/21 netball players showed that the more successful group to have significantly better values for cognitive state anxiety (direction), state self-confidence (direction) and peaking under pressure. The more successful group obtained better results in 13 of the 19 tested variables. Eight of these variables (of which three significantly so) are able to accurately (69.44% effective) discriminate between these two groups. Collectively, the SPS levels, information on SPST and the extent to which SPS contribute to performance necessitate a collaborated effort by sport psychologists and netball coaches to develop and implement a consistent, systematic sport-specific SPST progamme.

Key word: Sport psychological skills, training, performance, netball

Opsomming

Die belangrikheid van sportpsigologiese vaardigheids inoefening word beklemtoon deur die stelling, dat die kennis wat verkry word deur die bestudering van 'n atleet se gedrag binne 'n sport omgewing, gebruik kan word om gedrag te verduidelik, voorspel en te verander om sodoende prestasie te verbeter. Verder, word sportpsigologiese aspekte al hoe meer herken as die belangrikste bydraende faktore tot sportprestasie. Drie honderd en veertien o/19, o/21 en senior provinsiale netbal speelsters (gemidelde ouderdom 20.30 ± 3.88 jaar) van 33 provinsiale spanne wat deelgeneem het aan die 2004 Suid-Afrikaanse Interprovinsiale Netbal toernooie, het aan die studie deelgeneem. Hierdie speelsters het almal die Kompetisieangs Intervaris-2 (KAI-2), Sport Coping Vaardigheids Inventaris-28 (ACSI-28), en Sielkundige Vaardighede Inventaris (SVI) voltooi. Resultate vanuit die eerste artikel toon aan dat die spesifieke populasie beperkte vorige blootstelling gehad het aan sportpsigologiese vaardighede (SPV) en sportpsigologiese vaardigheids opleidings programme (SPVOP) in die algemeen. Die vaardighede waaraan hierdie spellers bloodgestel was, is selfvertroue, positiewe selfspraak, spangees/ kohesie, doelwitstelling en konsentrasie. Bowendien, sien die spelers SPVOP as noodsaaklik vir sukses veral omdat 26.43% van die spelers van opinie is dat hul sport psigologiese voorbereiding vir wedstryde gemiddeld tot ondergemiddeld is. 'n Vergelykende studie (artikel 2) tussen 'n meer suksesvolle en minder suksesvolle groepnetbalspeelsters (o19 en o/21), het aangetoon dat die meer suksesvolle groep prakties betekenisvolle beter waardes verkry het met betrekking tot hul piekpersepsie van die invloed van kognitiewe angs en selfvertroue tot prestasie, asook om piek prestasies onder druk te behaal. Die meer suksesvolle groep netbalspelers het ook beter waardes behaal vir 13 van die 19 getoetste veranderlikes. Agt van hierdie veranderlikes (waarvan drie betekenisvol is), is daartoe in staat om akkuraat te onderskei (69.44% effektief) tussen die twee groepe netbalspelers. Die SPV vlakke, informasie ten opsigte van SPVO en die mate waartoe SPV bydrae tot prestasie, noodsaak sportsielkundiges en netbalafrigters om 'n gesamentlik poging aan te wend ten opsigte van die ontwikkeling en implimentering van 'n konstante, sistematiese sport-spesifieke SPVOP.

Sleutelterme: Sportpsigologiese vaardighede, opleiding, prestasie, netbal

Table of Contents

Chapter 3

Sport psychological skills and netball performance.

Chapter 4

Summary, conclusions, recommendations and shortcomings.

Appendixes

List of Tables

List of Abbreviations

CSAI-2	Competitive State Anxiety Inventory-2
ACSI-28	Athletic Coping Skills Inventory-28
PSI	Psychological Skills Inventory
SPS	Sport Psychological Skills
SPST	Sport Psychological Skills Training
M	Mean
SD/s	Standard deviation
Sp	Pooled standard deviation
ES	Effect Size
d	Cohen's d – value
N	Number of subjects in total group
n	Number of subjects in each subgroup

1 Problem Statement, Objectives and Hypotheses

1 PROBLEM STATEMENT, OBJECTIVES AND HYPOTHESES

1.1 PROBLEM STATEMENT

Worldwide acknowledgement has been given to the important role of sport psychological factors and skills in achieving optimal performance in sport. According to (Rushall, 1989; Golby & Sheard, 2004), athletes and coaches are in agreement that sport psychology plays an important role, especially during an athlete's preparation for competition. Le Roux and Pienaar (2001) as well as Lyons (2001) further noted that sport psychology plays an important and ever-increasing role in the world of competitive sport. In this regard, Hoare and Warr (2000) found that technical, tactical and sport psychological factors are better determinants of performance in team sport, than anthropometrical and physiological factors. Iso-Aholo and Hatfield (as quoted by Onestak, 1991) previously noted that the physical preparation of athletes is already excessively covered and that the "*edge*" of sport lies in the psychological preparation of the athletes. Added to this, Grunlingh and Van Staden (1998/99) regard mental strength as the final key to enhanced athletic performances. The above-mentioned research findings stress the importance of developing a broad range of sport psychological skills for improved sport performances.

According to Gould *et al.* (1999), the introduction to such skills is primarily the responsibility of coaches. Various researchers (Savoy, 1997; Smith & Smoll, 1997; Gould *et al.*, 1999; Fourie & Potgieter, 2001) have, however, described the inability and lack of experience regarding the development and implementation of sport psychological skill development programmes by coaches as a problem within the sporting environment. Therefore, it could be argued that the introduction to and development of such skills should be the responsibility of qualified persons in the field of sport psychology, as they have the required knowledge to assist coaches with the

development of such skills (Martens *et al.*, 1990). One problem outlined by the last-mentioned researchers is that the available material is often based on research findings that are not easily understood by coaches. Furthermore, Gould *et al.* (1999) as well as Kruger (2005) revealed a shortage of trained sport psychologists who can address the development of this important performance determinant.

Over the last couple of decades, the sport science research community has studied a substantial number of sport psychological skills (SPS) and the influence that these skills have on sporting performance. These studies focused on achievement motivation (Wheaton, 1998; Reilly *et al.*, 2000; Weinberg & Gould, 2003), goal-setting (Eliot *et al.*, 2001; Getz & Rainey, 2001; Weinberg & Gould, 2003), anxiety control (Barnes *et al.*, 1986; Burton, 1988; Gould *et al.*, 1993; Hanton & Jones, 1995; Weinberg & Gould, 2003), self-confidence (Barnes *et al.*, 1986; Burton, 1988; Jones & Hanton, 2001; Weinberg & Gould, 2003), concentration (Bird & Horn, 1990; Wheaton, 1998; Weinberg & Gould, 2003), mental rehearsal/imagery (Murphy, 1994; Weinberg & Gould, 2003) and different coping skills (Crocker, 1992; Gould *et al.*, 1993; Jones, 2003). The above-mentioned skills will be the main focus of the problem statement and study.

According to Murray (as quoted by Weinberg & Gould, 2003) achievement motivation refers to a person's efforts to master a task, achieve excellence, overcome obstacles, perform better than others and take pride in exercising talent. The achievement motivation theories as outlined by Weinberg and Gould (2003) (need achievement theory, attribution theory, achievement goal theory and competence motivation theory) suggest that high and low achievers can be distinguished by their motives, the tasks they select to be evaluated on, the effort they exert during competition, their persistence, and their performance. According to Reilly *et al.* (2000), achievement motivation is the one psychological skill that has repeatedly been indicated in the literature to discriminate between successful and less successful athletes.

With regard to goal-setting, Eliot *et al.* (2001) indicated that 90% of the published research on goal-setting supports its use. According to Getz and Rainey (2001), goal-setting influences performance in various ways, i.e. it directs an athletes' attention to important elements of the sport, it mobilises and prolongs effort and persistence by providing incentives, as well as that it fosters the development of new strategies. It has also been shown that athletes using multiple goal-setting strategies, performed better than those athletes without specific goals (Weinberg & Gould, 2003). Goal-setting therefore seems to be a behavioural technique which is often implemented and holds definite advantages for the participants.

In reviewing research that compared successful and unsuccessful athletes, Gould *et al.* (1993) concluded that successful athletes exhibit less anxiety immediately before and during competition than their less successful counterparts. Two types of anxiety exist, i.e. trait and state anxiety (Weinberg & Gould, 2003). These researchers go on to explain that state anxiety can further be divided into somatic anxiety and cognitive anxiety. Somatic anxiety as described by Barnes *et al.* (1986) is the physiological component of anxiety, while cognitive anxiety is related to the negative expectations of an athlete (Hanton & Jones, 1995). Burton (1988) found that somatic anxiety primarily affects an athlete's initial performance (when the athlete is still feeling nervous), with only a minimal impact as the performance continues over a longer period of time. Conversely, this researcher pointed out that cognitive anxiety is a more powerful mediator of ongoing performance as attention is misdirected from task-relevant to task-irrelevant and self-evaluation cues. Weinberg and Gould (2003) reported somatic anxiety as having an inverted-U relationship with performance, while cognitive anxiety has a negative linear relationship with performance (Burton, 1988; Weinberg & Gould, 2003). Anxiety has subsequently been one of the most researched topics, in the field of sport psychology, as it plays an important role in sporting performance.

Self-confidence is the one mental skill often regarded as a primary requisite for optimal performances (Hodge & McKenzie, 2002; MacLean & Sullivan, 2003). Self-confidence has been hypothesised to have an inverted-U relationship with performance (Burton, 1988; Jones & Hanton, 2001; Weinberg & Gould, 2003) as self-confidence levels increase up to an optimal point, whereupon further increases in self-confidence cause performance decrements. Since performance accomplishments are associated with self-confidence (Weinberg & Gould, 2003), success could further give rise to increased self-confidence levels. Furthermore, Andrew (2006) found that within the team-sport environment, self-confidence can effectively distinguish between more and less successfull athletes.

Athletes and coaches recognise the development of exceptional concentration abilities in order to perform optimally (Weinberg & Gould, 2003). Concentration or selective attention (Wheaton, 1998) involves maintaining focus on relevant environment cues, having an awareness of the situation and effectively shifting one's attention when necessary. Bird and Horn (1990), found that successful athletes are task-orientated, while less successful athletes tend to focus more on the performance outcome. In an overview of the relevant literature on attention control, Weinberg and Gould (2003) found it to be an important discriminating factor between successful

and less successful athletes, as successful athletes are less likely to become distracted by irrelevant stimuli.

Mental rehearsal or imagery seems to be a popular psychological skill among top athletes, as 90% of Olympic athletes used some form thereof (Weinberg & Gould, 2003). Further more, 97% of these athletes perceived these activities as helpful to their performance. In summarising studies on mental rehearsal, Murphy (1994) indicated successful athletes to be more likely to engage in mental processes such as dreaming about successful competition outcomes, internal imagery use and the use thereof as a strategy for problem solving, than their less successful counterparts.

Smith (as quoted by Gould *et al.*, 1993) as well as Kruger (2005) has suggested that failure to cope constructively with the acute stress associated with athletic competition could lead to ineffective cognitive processing, energy reduction, performance decrements and other debilitating outcomes. Lazarus and Folkman (as quoted by Crocker, 1992) define coping as "constantly changing cognitive and behavioural efforts to manage specific external/internal demands that are appraised as taxing or exceeding the resources of the person". Coping responses, therefore, are dynamic conscious strategies that mediate between perceived stressful events and outcomes such as negative and positive emotions, somatic problems and performance. In this regard, these researchers found that a limited coping repertoire or the absence of specific coping skills is a contributing factor to inadequate performance. Gould *et al.* (1993) and Jones (2003) are of the opinion that successful athletes and those performing to their full potential are characterized by comprehensive planning for competition. The extensive use of pre-competitive, competitive, refocusing and post-competitive evaluation plans is regarded as critical for maximizing performance, overcoming performance blocks and managing the competitive environment.

The brief literature review on various SPS and their relationship with sport performance, clearly indicates the importance of developing a broad range of the above mentioned skills among athletes. Unfortunately, very little is known about the current SPS levels of South African athletes from almost all sporting codes. Despite netball being the most popular women's sport in South Africa with approximately 649 820 participants in 1997 (SISA, 1997), only one study (by Bock Jonathan *at al.*, 2004) could be found that addressed mental toughness among netball players. It is in light of the shortage of research on netball players and the literature review, which showed the importance of SPS development, that the researcher of the present study

decided to investigate the current status of sport psychological skills training (SPST) among South African provincial netball players and the influence of SPS on netball performance.

From the outlined problem statement, several research questions are posed. Firstly, what is the previous exposure of South African provincial netball players to SPST and to which SPS have they been exposed to? Secondly, what is the perception of these players regarding the importance of SPST, their ability to prepare themselves psychologically for matches and their expressed need for SPST? Thirdly, how does the SPS level of these players address? Lastly, to what extent, do the individual SPS levels of these players contibute to the performance outcome of the team? The above four questions will be investigated for the total group that includes, u/19's, u/21's and senior players respectively.

Answers to these research questions would be invaluable to the netball and Sport Science community and it could be used to address possible shortcomings by developing and implementing SPST programmes. A collaborated effort aimed at improving the SPS levels of provincial netball players bodes well for the future of the sport in this country.

1.2 OBJECTIVES

The objectives of this study are to determine:

1. The extent of the netball players' previous consultations with sport psychologists and their exposure to SPST.
2. To which SPS these players have been exposed.
3. The players' perceived importance of SPST.
4. The players' perceived ability to prepare psychologically for matches.
5. The players' need for SPST.
6. The players' current SPS levels.
7. The influence of SPS on netball performance by comparing players from successful and less successful teams.

1.3 HYPOTHESES

The hypotheses of this study is that the South African provincial netball players':

1. Have had few previous consultations with sport psychologists and limited exposure to SPST.
2. Have only been exposed to a few SPS.
3. Perceive SPST to be important.

4. Perceive their own ability to prepare psychologically for matches as good.
5. Will express a need for SPST.
6. Possess average SPS levels.
7. a. Players from more successful provincial teams will have significantly better SPS levels than players from less successful provincial netball teams.

   b. Players from more successful provincial netball teams and players from less successful teams can be discriminated on the basis of various sport psychological variables.

1.4 STRUCTURE OF THE DISSERTATION

This dissertation is submitted in article format as approved by the Senate of the North-West University and is structured as follows:

- ✓ Chapter 1 consists of the problem statement, objectives and the hypotheses of the study. A source lists is provided at the end of the chapter according to the prescriptions of the North-West University (p6).
- ✓ Chapter 2 is a research article entitled "A survey of Sport Psychological Skills Training in South African Netball." This article will be submitted for publication in the African Journal for Physical, Health Education, Recreation and Dance (AJPHERD). This article is hereby included according to the specific prescriptions of the journal. The instructions for authors are included as Appendix A (Guidelines for authors).
- ✓ Chapter 3 is a research article entitled "Sport Psychological Skills and Netball Performance." This article will be submitted for publication in the Journal of Human Movement Studies (JHMS). This article is hereby included according to the specific prescriptions of the journal. The instructions for authors are included as Appendix B (Guidelines for contributors).
- ✓ Chapter 4 consists of a short summary, conclusions, shortcomings and recommendations of the study.

1.5 SOURCE LIST

ANDREW, M. (2006). Sport psychological skills that distinguish between u/19 club rugby players of different participation levels and positional groups. *North-West University, Potchefstoom.* (Unpublished M.Sc. dissertation.) *61p.*

BARNES, M.W., SIME, W., DIENSTHBIER, R. & PLAKE, B. 1986. A test of the construct validity of the CSAI-2 questionnaire on male elite collegiate swimmers. *International journal of sport psychology*, 17(5):364-374.

BIRD, A.M. & HORN, A. 1990. Cognitive anxiety and mental errors in sport. *Journal of sport and exercise psychology,* 11(2):217-222.

BOCK JONATHAN, B., GRUNDLINGH, A. & LE ROUX, M. 2004. Exploring mental toughness in netball players. *In Proceedings: Young researcher seminar (Sport science). Innsbruck, Austria 23-26 September, (Edited by C. Raschner, A. Niederkofler, M. Redl and M. Schnitzer). pp. 59-68.*

BURTON, D. 1988. Do anxious swimmers swim slower? Re-examining the elusive anxiety-performance relationship. *Journal of sport and exercise psychology,* 10(1):45-61.

CROCKER, P.R.E. 1992. Managing stress by competitive athletes: Ways of coping. *International journal of sport psychology*, 23(2):161-175.

ELIOT, J., BOYCE, B.A., WAYDA, V.K., JOHNSTON, T. & BUNKER, L.K. 2001. The effect of three types of goal setting conditions on tennis performance: A field –based study. *Journal of teaching in physical education*, 20(2):188-200.

FOURIE, S. & POTGIETER, J.R. 2001. The nature of mental toughness in sport. *South African journal for research in sport physical education and recreation*, 23(2):63-72.

GETZ, D.E. & RAINEY, D.W. 2001. Flexible short-term goals and basketball shooting performance. *Journal of sport behavior*, 24(1):31-40

GOLBY, J. & SHEARD, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality and Individual Differences*, 37: 933-942.

GOULD, D., EKLUND, R.C. & JACKSON, S.A. 1993. Coping stategies used by U.S. Olympic wrestlers. *Research quarterly for exercise and sport*, 64(1):83-93.

GOULD, D., DAMARJIAN, N. & MEBERY, R. 1999. An examination of mental skills training in junior tennis coaches. *The sport psychologist*, 13(2):127-143.

GRUNLINGH, A. & VAN STADEN, F. 1998/99. Perceived control of anxiety and its relationship to self-confidence and performance. *Research quarterly for exercise and sport*, 73(1):87-97.

HANTON, S. & JONES, G. 1995. Antecedents of multidimensional state anxiety in elite competitive swimmers. *International journal of sport psychology*, 26(4):512-523.

HOARE, D.G. & WARR, C.R. 2000. Talent identification and women's soccer: An Australian experience. *Journal of sports sciences*, 18:751-758.

HODGE, K. & MCKENZIE, A. 2002. Motivation and confidence. (*In* Hale, B. & Collins, D., *eds.* Rugby tough. Champaign, Ill. : Human Kinetics Publishers. p. 35-60.)

JONES, M.V. 2003. Controlling emotions in sport. *The sport psychologists*, 17:471-486.

JONES, G. & HANTON, S. 2001. Pre-competitive feeling states and directional anxiety interpretations. *Journal of sports sciences*, 19:385-395.

KRUGER, P. 2005. Psigologiese vaardighede, angs en hantering van Suid-Afrikaanse rugby spelers : 'n Kognitiewe perspektief. [Psychological skills, state anxiety and coping of South African rugby players : A cognitive perspective.] Unpublished Ph.D. dissertation. North-West University: Potchefstroom. (Unpublished Ph.D. dissertation.) 137 p.

LE ROUX, J.G. & PIENAAR, G.E. (2001). Sportsielkunde as komponent in die opleidingsprogram van vakonderwysers. [Sports psychology as component of the training programme for subject teachers.] *Educare*, 30: 185-207.

LYONS, M. (2001). Commentary: In support of a written curriculum based on sport psychology for high school sports teams. *Athletic Insight: The Online Journal of Sport Psychology.* Hyperlink [http://www.athleticinsight.com/Vol3Iss2/Commentary.htm]. Retrieved 20 March 2005.

MACLEAN, D. & SULLIVAN, P. 2003. A season long case study investigation of collective efficacy in male intercollegiate basketball. *Athletic insight: The online journal of sport psychology.* [Web:] http://www.athleticinsight.com/Vol5Iss3/CollegeBasketballCaseStudy.htm [Date of access: 14 Mar. 2005].

MARTENS, R., VEALY, R.S. & BURTON, D. 1990. Successful Coaching. 2nd edition. Champaign IL: Human Kinetics Publishers. 237p

MURPHY, S.M. 1994. Imagery interventions in sport. *Medicine and science in sport and exercise,* 26(4):486-494.

ONESTAK, D.M. 1991. The effects of progressive relaxation, mental practice, and hypnosis on athletic performance. *Journal of sport behavior*, 14(4):247-282.

REILLY, T., WILLIAMWS, A.M., NEVILL, A. & FRANKS, A. 2000. A multidisciplinary approach to talent identification in soccer. *Journal of sports sciences*, 18(9):695-702.

RUSHALL, B.S. 1989. Sport psychology: The key to sporting excellence. *International journal of sport psychology,* 20(3):165-190.

SAVOY, C. 1997. Two individualized mental training programs for a team sport. *International journal of sport psychology,* 28(3):259-270.

SISA ***see*** SPORTS INFORMATION AND SCIENCE AGENCY

SMITH, R.D. & SMOLL, F.L. 1997. Coaching the coaches: Youth sport as a scientific and applied behavioural setting. *Journal of applied psychology,* 6(1):16-21.

SPORTS INFORMATION AND SCIENCE AGENCY. 1997. Research on the participation of women in South Africa. BMI Sport Info (Pty) Ltd. 75p.

WEINBERG, R. & GOULD, D. 2003. Foundations of sport and exercise psychology. 3rd ed. Champaign, IL: Human Kinetics Publishers. 585p.

WHEATON, K.A. 1998. A psychological skills inventory for sport. Stellenbosch: University of Stellenbosch (Unpublished M.A. dissertation.) 156p.

2

A Survey of Sport Psychological Skills Training in South African Netball

2 A SURVEY OF SPORT PSYCHOLOGICAL SKILLS TRAINING IN SOUTH AFRICAN NETBALL

This article will be presented for publication in the African Journal for Physical, Health Education, Recreation and Dance (AJPHERD). The article is included according to the specific guidelines of the journal, which is attatched as Appendix A (Guidelines for Authors).

✓ Zelna van den Heever (Honns. B.A. Sport Science) Masters student in the School of Biokinetics, Recreation and Sport Science*

✓ Heinrich W. Grobbelaar (M.Sc. Sport Science) lecturer in the School of Biokinetics, Recreation and Sport Science. Please address all correspondence to him:

E-mail: Heinrich.Grobbelaar@nwu.ac.za

Postal Address: North-West University, Private bag x6001, Potchefstroom, 2520, Republic of South Africa.

Tel: +27(0)18 299 1793 (w)

Fax: +27(0)18 299 4622

✓ Dr. Johan C. Potgieter (Ph.D. Clinical Psychology) registered clinical psychologist and senior lecturer in the School of Psychosocial Behavioural Sciences*

* **All three authors are affiliated to the faculty of Health Sciences of the North-West University, Potchefstroom Campus.**

A SURVEY OF SPORT PSYCHOLOGICAL SKILLS TRAINING IN SOUTH AFRICAN NETBALL

Z. van den Heever*, H.W. GROBBELAAR* and J.C. POTGIETER**

ABSTRACT

There is a lack of information on sport psychological skills training programmes within South African netball. The purpose of this study was to report on the previous exposure, perceived importance of, and need for sport psychological skills training (SPST) sessions, as expressed by 314 (20.30 ± 3.88 years) South African provincial netball players who participated in the Inter-Provincial Netball tournament hosted by the North-West University, Potchefstroom Campus during 2004. Additionally, the sport psychological skill (SPS) levels of the players from different age groups were compared and reported. Results show that this population had limited prior exposure to sport psychologists and SPST. Self-confidence, positive self-talk, team cohesion/team spirit, goal-setting and concentration are the topics the players have mostly been exposed to. More than two thirds (67.51%) of the total tested group perceives SPST as very important, while almost half (49.68%) of the subjects perceive themselves to be psychologically well prepared for matches. Unfortunately, more than a quarter (26.42%) of the players indicated average, below average or poor psychological preparation. A sport-specific SPST programme should be developed by sport psychologists in collaboration with top netball coaches and implemented especially when looking at the reported skill levels of the subjects in this study. This notion is confirmed by further results, which indicate that 26.75% of the subjects have expressed a great need for SPST.

Key words: Netball, Sport psychological skills, Sport psychological skills training

Zelna v.d. Heever*, M.A. Honns.
Heinrich Grobbelaar*, M.Sc. Sport Science.
Johan Potgieter**, Ph.D., Clinical Psychology
* *School of Biokinetics, Recreation and Sport Science*
** *School of Psychosocial Behavioural Sciences*

North-West University, Potchefstroom Campus, Private Bag X6001
Potchefstroom
2531
Republic of South Africa

Email: Heinrich.Grobbelaar@nwu.ac.za

INTRODUCTION

Athletes and coaches are in agreement that sport psychology plays an important role, especially during an athlete's preparation for competition and some even suggest that sport psychological factors are the most significant contributors to success in sport (Rushall, 1989; Le Roux and Pienaar, 2001; Lyons, 2001). Hoare and Warr (2000) found that technical, tactical and sport psychological factors are better determinants of performance in team sports, than anthropometrical and physiological factors. Subsequently, sport psychological skills training (SPST) has become essential in modern sport (Czech, Ploszay & Burke, 2004). SPST refers to the systematic and consistent practice of mental or sport psychological skills (SPS) for the purpose of enhancing performance, increasing enjoyment or achieving greater self-satisfaction in sport and physical activity (Weinberg & Gould, 2003).

The identification and development of sport psychological skills have as a result become of great interest to players, coaches, administrators and continues to be an important area of research, due to the relationship that exists between these skills and performance (Hodge & McKenzie, 2002; Golby & Sheard, 2004). There are, however, justifiably those athletes who feel that they can do without any outside help (Meyers, Kirschenbaum, Maccann &

Williams, 2005). Indeed, Anderson, Hodge, Lavallee and Martin (2004), found that some athletes are sceptical about the usefulness of sport psychological services. One possible reason for this is that athletes who make use of sport psychologists are often stigmatised by other athletes, because this behaviour is often equated with individuals seeking general mental health support (Van Raalte, Brewer & Linder, 1992; Van Raalte, Brewer, Matheson & Brewer, 1996). Furthermore, SPST is usually conducted on either a "time availability" basis or an "emergency" basis, which means that the SPS are predominantly trained during the pre-season when there are less demands on the athlete's time (Balague, 2000). Another contributing factor mentioned by this researcher is that SPST is requested only when a problem is detected, thereby causing athletes to think that SPST is only used for remedial purposes and will, therefore, not increase consistency of control over performance (Balague, 2000).

Despite being the most popular woman's sport in South Africa (with 649 820 participants in 1997 (SISA, 1997)), very little information exists on the SPS levels and SPST of South African netball players in general. It is in light of this shortcoming and the outlined literature, which indicated the importance of SPS development that the following aims are posed. The first aim is to determine the previous exposure of provincial netball players in South Africa to SPST sessions. Secondly, to determine to which specific SPS the players have been exposed to. Thirdly, determine the perception of these players regarding the importance of SPST programmes, their own ability to be psychologically prepared for matches and their need for SPST programmes. Lastly, to report and compare the SPS levels of different age group participants (u/19's, u/21's and seniors) of the South African provincial netball tournaments.

These results would be invaluable to the netball and sport science community as they could be used to address possible shortcomings by developing and implementing SPST programmes addressing the needs of this population. In this regard Savoy (1997) indicated that the first step of SPST programmes is the evaluation of the athlete's foundational skills, in order to identify existing skills, deficits, strengths and weaknesses. Knowledge of the needs and skill levels of the athlete will allow sport psychologists to tailor interventions to the individual, moving further away from the old model that would teach the same psychological skills to all athletes at the same time (Anderson at al., 2004). A collaborated effort aimed at improving the SPS levels of provincial netball players bodes well for the future of the sport in this country.

MATERIALS AND METHODS

Subjects

Three hundred and fourteen (314) provincial netball players from 33 provincial teams who participated in the South African Inter-Provincial Netball tournaments co-hosted by the North-West University, Potchefstroom on Campus during 2004 participated in the study. The subjects consisted of players from three age groups (u/19, u/21 and seniors). Table 1 gives a detailed description of the subject group.

Table 1: Demographic information of the subject group

		Total subject group N = 314 (33 teams)	u/19 players n = 133 (13 teams)	u/21 players n = 117 (12 teams)	Senior players n = 64 (8 teams)
Average age and standard deviation		20.30 ± 3.88 years	18.03 ± 1.30 years	19.81 ± 1.43 years	25.90 ± 4.91 years
Race	White	163 (51.91%)	65 (48.87%)	55 (47%)	43 (67.18%)
	Black	119 (37.89%)	55 (41.35%)	50 (42.73%)	14 (21.87%)
	Coloured	32 (10.19%)	13 (9.77%)	12 (10.25%)	7 (10.93%)
Average number of years playing		10.97 ± 4.25 years	9.02 ± 2.96 years	10.46 ± 3.38 years	15.94 ± 4.09 years

Procedures

Permission for the study was granted by the Council of Netball South Africa and the presidents of the various provinces were informed of the proposed study. The testing procedure was communicated to the managers and coaches during the meeting held on the evening prior to the commencement of the Inter-Provincial Netball tournaments. The subjects were informed about the nature of the research project. Confidentiality of results was emphasized, and all of the subjects completed informed consent forms. The questionnaires were completed by the participants under supervision of the first two authors of this article and took approximately 45 minutes.

Questionnaires

The subjects completed two questionnaires. The first questionnaire consisted of three sections, i.e. demographic information, netball playing history and perceptions regarding SPST. The various SPS were measured by the Psychological Skills Inventory (PSI) of Wheaton (1998). This instrument consists of 64 questions and measures, six subscales (achievement motivation, goal directedness, activation control, maintaining self-confidence,

concentration and mental rehearsal) from which a composite psychological skills score is derived. The test-retest reliability on the PSI was found to range from r = 0.84 to r = 0.97 (Wheaton, 1998).

Data analysis

The Statistical Data Processing package (StatSoft Inc., 2004) was used to analyze the data. The descriptive statistics (averages and standard deviations) of each tested variable of the three groups and the total subject group were calculated. Practically significant differences between the three groups were determined by means of effect sizes (ES), since the subject group was not randomly selected. Caution should, therefore, be taken when generalizing the results of this study to other netball groups. ES are determined as follows:

$$ES = (M_1 - M_2)/s$$

Here, M_1 = the mean of the first group in the comparison, M_2 = the mean of the second group in the comparison, and s = the standard deviation. Thomas and Nelson (2001) recommend that the pooled standard deviation (Sp) be used in research designs such as the present one:

$$s_p = \sqrt{\frac{s_1^2(n_1-1)+s_2^2(n_2-1)}{n_1+n_2-2}}$$

Here, s_1^2 = the variance of the players in the first group, s_2^2 = the variance of the players in the second group, n_1 = the number of players in the first group and n_2 = the number of players in the second group. Effect sizes are expressed as Cohen's d-value and can be interpreted as follows: an ES of more or less 0.8 is large, an ES of more or less 0.5 is moderate, and an ES of more or less 0.2 is small (Thomas & Nelson, 2001).

RESULTS AND DISCUSSION

Table 2 reports on the players' previous consultation with sport psychologists and previous exposure to SPST. From this table it is clear that approximately a third (31.84%) of the South African provincial netball players involved in these tournaments have previously consulted sport psychologists (individually or during team sessions), while 43.31% have previously been exposed to SPST. The results of the u/19 players regarding previous consultations with sport psychologists (24.06%) compares well with the results of Andrew (2006) who found that 23.3% of elite student u/19 rugby players previously consulted sport psychologists. A plausible explanation for the lower values among the u/19 players compared to the u/21 and senior players regarding consultations and exposure to SPST sessions is the notion that adolescents (age 19 years and younger) are resistant to seeking psychological help (Raviv, Sills, Raviv & Wilansky, 2000). Furthermore, a substantial number of the older players might have been exposed to

Table 2: Descriptive statistics regarding South African provincial netball players' (N = 314) previous consultations with sport psychologists and exposure to SPST.

	Total tested group (N = 314)	u/19 players (n = 133)	u/21 players (n = 117)	Seniors players (n = 64)
Previous consultation with a sport psychologist (individually and/or during team sessions)	31.84%	24.06%	34.18%	43.75%
Previous exposure to SPST sessions	43.31%	36.09%	48.71%	48.43%

Table 3: Descriptive statistics and ranking of the various sport psychological skills to which the players have been exposed.

Sport psychological skills	Total tested group (N = 314)	u/19 players (n = 133)	u/21 players (n = 117)	Seniors players (n = 64)
Self-confidence	54.45% (1)	57.14% (1)	52.13% (2)	57.81% (3)
Positive self-talk	53.18% (2)	47.36% (3)	53.84% (1)	64.06% (1)
Team cohesion/Team spirit	52.86% (3)	54.13% (2)	51.28% (4)	57.81% (4)
Goal-setting	51.27% (4)	46.61% (4)	51.28% (3)	60.93% (2)
Concentration skills	48.08% (5)	44.36% (5)	50.42% (5)	51.53% (6)
Post-match analysis in order to improve the next performance	41.40% (6)	37.59% (6)	44.44% (6)	43.75% (7)
Visualization	35.98% (7)	23.30% (10)	41.02% (7)	53.12% (5)
Stopping and replacing negative thoughts	34.71% (8)	30.82% (7)	36.75% (8)	39.06% (9)
Muscle relaxation	31.84% (9)	29.32% (8)	29.91% (12)	40.62% (8)
Different coping skills	30.57% (10)	22.55% (11)	35.89% (9)	37.50% (10)
Enhancing commitment	27.70% (11)	27.81% (9)	30.76% (10)	21.87% (14)
Psychological strategies for the match	23.56% (12)	18.79% (12)	23.93% (13)	32.81% (11)
Pre-competition routines	22.61% (13)	12.03% (13)	30.76% (11)	29.68% (12)
Music for relaxation	15.60% (14)	9.77% (14)	17.94% (14)	25.00% (13)

these professionals at tertiary institutions whereas a number of the u/19 players in the present study are just entering or are about to enter these systems at institutions of higher education. In this regard it may be addressed that the younger players need to be introduced to programmes in which they can learn to reduce any negative thoughts concerning sport psychology (Bock Jonathan, Grundlingh & Le Roux, 2004).

Table 3 reports on the descriptive statistics and ranking of the various SPS to which the players have previously been exposed. In the results it is eminent that a reasonable portion of the subjects have been exposed to training in SPS such as self-confidence (54.45%), positive self-talk (53.18%), team cohesion/team spirit (52.86%), goal-setting (51.27%) and concentration skills (48.08%). These skills are ranked as the top five skills to which the players have been exposed across the three age groups. Thiese and Huddleston (1999), Wang, Huddleston and Peng (2003) as well as Weinberg and Gould (2003), reported these skills as the most commonly used sport psychological skills by athletes. However, it is evident that this specific population does not use SPS often enough. Martens, Vealy and Burton (1990), argued that the introduction to and development of such skills should be the responsibility of qualified persons in the field of sport psychology. Gould, Damarjian and Medbery (1999) noted that these experts have the required knowledge to assist coaches with the development of these skills, because their material is often based on research findings, which are not easily understood by coaches. The last-mentioned research team also revealed a shortage of trained sport psychologists who can address this important performance determinant. This problem is aggravated by the fact that there is currently no registration category for sport psychologists within the South African Health Profession Council. More recently, Gould *et al.* (1999) concluded that the introduction to SPS and SPST programmes is primarily the responsibility of coaches, especially at the junior and sub-elite levels of sport. Savoy (1997), Gould *et al.* (1999) as well as Fourie and Potgieter (2001) noted that the lack of experience by coaches and the inability to develop and implement SPST programmes is a major problem within the sporting environment.

Table 4 reports on the subjects' perceived importance of SPST, perceived ability to be psychologically prepared for matches and their expressed need for SPST. Only the results for the total subject group are reported, as very small differences were observed between the three subject groups. This table reports on the percentage of players who responded to each question category, after which these results are expressed as the average value and standard

Table 4: The player's perceived importance, own ability and expressed need for SPST.

		Percentage of repondents	
		Total tested group (N = 314)	Average and standard deviation of the total tested group (M ± SD)
The perceived importance of sport psychological skills training	Very important (5)	67.51%	4.62 ± 0.63
	Important (4)	27.39%	
	Neutral (3)	3.18%	
	It can help, but it is not important (2)	1.92%	
	It is a waste of time (1)	-	
Evaluation of own ability to prepare psychologically prepared for matches	Very good (5)	23.89%	3.96 ± 0.77
	Good (4)	49.68%	
	Average (3)	24.52%	
	Below average (2)	1.27%	
	Poor (1)	0.64%	
Expressed need for sport psychological skills training	Great need (5)	26.75%	3.93 ± 0.84
	Have a need (4)	43.63%	
	Uncertain (3)	26.44%	
	No need (2)	3.18%	
	Definitely no need (1)	-	

Table 5: Descriptive statistics of the total subject group (N = 314) for the seven sport psychological skills.

Sport psychological skills	Averages and standard deviation of the total tested group
Composite Psychological skills score	64.95 ± 11.96%
Achievement motivation	76.88 ±13.08 %
Goal directedness	64.59 ± 19.18%
Activation control	60.23 ± 15.67%
Maintaining self-confidence	64.02 ± 15.65%
Concentration	65.63 ± 13.89%
Mental rehearsal	57.71 ± 18.82%

deviation according to responses on a 5 point Likert type scale. Despite the small number of players who previously consulted sport psychologists (*Table 2*) and the players' limited prior exposure to SPST (*Table 3*), more than two thirds (67.51%) of the total group tested perceived SPST as *very important* for performance in netball. These results are in line with the findings of Kruger (2003) who reported that 67.5% of South African Super 12 rugby players perceive SPST as *very important*. Although less than a quarter of the total subject group (23.89%) perceive themselves to be *very well* prepared for matches, 49.68% of the subjects perceive themselves to be *well* prepared. Unfortunately, this implies that more than a quarter (26.43%) of the players indicated *average, below average or poor* psychological preparation. Table 4 also indicates that South African provincial netball players have a need for SPST programmes. This notion is confirmed by the results which indicate that 26.75% of the subjects expressed a *great need*, with a further 43.63% showing a *need* for SPST. The SPS levels of the players (illustrated in Table 5) further emphasize this point.

Table 5 reports on the average SPS levels of the total tested group as measured by the PSI. Comparisons between the three subject groups in this study revealed practically significant differences between the u/19 and senior players with regard to two SPS. The senior players had significant (*d = 0.34)* higher achievement motivation levels than the u/19 players (79.34 ± 11.77% compared to 74.93 ± 13.34%). In line with this finding, Stewart and Meyers (2004) also showed older elite soccer players to be more motivated to achieve success than the younger elite soccer players. The senior players also showed significantly (*d* = 0.38) higher self-confidence levels than the u/19 players (68.52 ± 15.66% compared to 61.84 ± 18.18%). One possible explanation for this result might be the influence that self-esteem has on self-confidence. According to Carr (2004), self-confidence is closely related to self-esteem. The latter is reasonably stable over time, but may change at certain lifecycle transition points, such as adolescence. During the course of adolescence, there is considerable variability in changes in self-esteem due to a child's negative evaluation of the physical and social changes that accompany the transition in adolescence. There is, however, evidence that self-esteem gradually increases with the onset of adulthood and longitudinal studies show that stability is greater in adulthood than childhood. This stability in self-esteem causes people to process information about themselves accurately and positively, which might in part explain the higher self- confidence levels of the older players. Since no other significant differences were observed, only

the descriptive statistics of the total tested subject group are reported. Collectively, this table highlights certain shortcomings pertaining to the groups' SPS levels, which need to be addressed.

CONCLUSIONS

To our knowledge, this is the first survey of SPST among South African netball players. The results of this study enable one to draw certain conclusions. Firstly, the population under scrutiny has had limited exposure to sport psychologists and SPST in general. Secondly, self-confidence, positive self-talk, team cohesion/team spirit, goal-setting and concentration skills are the skills to which these players have predominantly been exposed too. Approximately a half of the players in this population have previously been exposed to the above-mentioned skills. This indicates a large room for improvement, while there are many other skills which could also be implemented. Thirdly, although having indicated that the total group tested regard SPST as essential for success in sport, a substantial number (26.43%) of the players are of the opinion that their psychological preparations for matches are average or below average. The subjects also expressed a need for the development and implementation of SPST programmes, which is further motivated when taking into account the relatively poor SPS levels reported in this study.

It is, therefore, recommended that sport psychologists and top netball coaches collaborate their efforts and expertise in developing a SPST programme specifically for this population in netball. The shortcomings outlined in this study such as poor goal directedness, activation control, concentration and mental rehearsal should specifically be addressed in such a programme. Coaches should also be educated on how to effectively implement this programme. Once developed and implemented the effectiveness of this programme should be determined through controlled, longitudinal studies.

ACKNOWLEDGEMENTS

The authors hereby gratefully acknowledge the Council of Netball South Africa, the organising committee of the various Inter-Provincial Netball tournaments (in particular Helene Botha), all team managers, coaches and players who participated in the project. The financial assistance of the Institute for Sport Science and Development from the North-West University, Potchefstroom Campus is appreciated.

REFERENCES

Andrew, M. (2006). Sport psychological skills that distinguish between u/19 club rugby players of different participation levels and positional groups. M.Sc Dissertation. North-West University, Potchefstroom, South Africa. 61p.

Anderson, A.G., Hodge, K.P., Lavallee, D. & Martin, S.B. (2004). New Zealand athlete's attitudes towards seeking sport psychology consultation. *New Zealand Journal of Psychology,* 33(3), 129-136.

Balague, G. (2000). Periodization of pshcological skills training. *Journal of Science and Medicine in Sport*, 3(3), 230-237.

Bock Jonathan, B., Grundlingh, A. and Le Roux, M. (2004). Exploring mental toughness in netball players. *In Proceedings: Young researcher seminar (Sport science). Innsbruck, Austria 23-26 September, (Edited by C. Raschner, A. Niederkofler, M. Redl and M. Schnitzer). pp. 59-68.*

Carr, A. (2004). Positive psychology: In The science of happiness and human strength. New York: Brunner-routledge. 388p

Czech, D.R., Ploszay, A.J. & Burke, K.L. (2004). An examination of the maintenance of preshot routines in basketball free throw shooting. *Journal of Sports Behavior*, 27(4), 323-329.

Fourie, S. & Potgieter, J.R. (2001). The nature of mental toughness in sport. *South African Journal for Research in Sport, Physical Education and Recreation*, 23(2), 63-72.

Golby, J. & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality and Individual Differences*, 37(5): 933-942.

Gould, D., Damarjian, N. & Medbery, R. (1999). An examination of mental skills training in junior tennis coaches. *The Sport Psychologist*, 13(2), 127-143.

Hoare, D.G. & Warr, C.R. (2000). Talent identification and women's soccer: An Australian experience. *Journal of Sports Sciences*, 18(9), 751-758.

Hodge, K. & McKenzie, A. (2002). Motivation and confidence. In B. Hale & D. Collins (Ed.), *Rugby tough (35-60)*. Champaign, IL: Human Kinetics.

Le Roux, J.G. & Pienaar, G.E. (2001). Sportsielkunde as komponent in die opleidingsprogram van vakonderwysers. [Sports psychology as component of the training programme for subject teachers.] *Educare*, 30: 185-207.

Lyons, M. (2001). Commentary: In support of a written curriculum based on sport psychology for high school sports teams. *Athletic Insight: The Online Journal of Sport Psychology*. Hyperlink [http://www.athleticinsight.com/Vol3Iss2/Commentary.htm]. Retrieved 20 March 2005.

Kruger, P. (2003). Psigologiese vaardighede en sport prestasie by Suid Afrikaanse Super-12 rugbyspelers. [Psychological skills and performance of South African Super-12 rugby players.] M.A. Dissertation. University of the Orange Free State, Bloemfontein, South Africa. 57p.

Martens, R., Vealy, R.S. & Burton, D. (1990). Competitive anxiety in sport. Champaign IL: Human Kinetics Publishers. 288p.

Meyers, A., Kirschenbaum, D., Maccann, A. & Williams, J. (1995). The use of sport psychology to improve sport performance. Sport science library, 6(2). [Web:] http://www.gssiweb.com [Date of access: 31 March 2005].

Raviv, A., Sills, R., Raviv, A. & Wilansky, P. (2000). Adolescents' help seeking behavior. The difference between self and other referral. *Journal of Adolescence*. 23(6), 271-740.

Rushall, B.S. (1989). Sport psychology: The key to sporting excellence. *International Journal of Sport Psychology*, 20(3), 165-190.

Savoy, C. (1997). Two individualized mental training programs for a team sport. *International Journal of Sport Psychology*, 28(3), 259-270.

SISA ***see*** Sports information and science agency.

Sports information and science agency. (1997). Research on the participation of women in South Africa. BMI Sport Info (Pty) Ltd. 75p.

Statsoft, Inc. (2004). STATISTICA (data analysis software system), version 6. www.statsoft.com

Stewart, C. & Meyers, M.C. (2004). Motivational traits of elite young soccer players. *Physical Educator*, 61(4), 213.

Thiese, K.E. & Huddleston, S. (1999). The use of psychological skills by female college swimmers. *Journal of Sport Behavior*, 22(4), 602-610.

Thomas, J.R. & Nelson, J.K. (2001). Research methods in physical activity. 4th ed. Champaign, IL: Human Kinetics Publishers. 449p.

Van Raalte, J.L., Brewer, D.D. & Linder, D.E. (1992). NCAA Division II college football players perceptions of an athlete who consults a sport psychologists. *Journal of Sport & Exercise Psychology*, 14(3), 273-282.

Van Raalte, J.L., Brewer, D.D., Matheson, H & Brewer, B.W. (1996). British athlete's perception of sport and mental health practitioners. *Journal of Applied Sport Psychology*, 8(1), 102-108.

Wang, L., Huddleston, S. & Peng, L. (2003). Psychological skills use by Chinese swimmers. *International Sports Journal*, 7(1), 48-55.

Weinberg, R. & Gould, D. (2003). Foundations of sport and exercise psychology. 3rd ed. Champaign, IL: Human Kinetics Publishers. 585p.

Wheaton, K.A. (1998). A psychological skills inventory for sport. M.A. Dissertation. University of Stellenbosch, Stellenbosch, South Africa. 156p.

3

Sport Psychological Skills and Netball Performance

3 SPORT PSYCHOLOGICAL SKILLS AND NETBALL PERFORMANCE

This article will be presented for publication in the Journal of Human Movement Studies (JHMS). The article is included according to the specific guidelines of the journal, which are attached in Appendix B (Guidelines for contributors).

- ✓ Zelna van den Heever (Honns. B.A. Sport Science) Masters student in the School of Biokinetics, Recreation and Sport Science*
- ✓ Heinrich W. Grobbelaar (M.Sc. Sport Science) lecturer in the School of Biokinetics, Recreation and Sport Science*. Please address all correspondence to him:
  E-mail: Heinrich.Grobbelaar@nwu.ac.za
  Postal Address: North-West University, Private bag x6001, Potchefstroom, 2520, Republic of South Africa.
  Tel: +27(0)18 299 1793 (w)
  Fax: +27(0)18 299 4622
- ✓ Dr. Johan C. Potgieter (Ph.D. Clinical Psychology) registered clinical psychologist and senior lecturer in the School of Psychosocial Behavioural Sciences*

* **All three authors are affiliated to the faculty of Health Sciences of the North-West University, Potchefstroom Campus.**

SPORT PSYCHOLOGICAL SKILLS AND NETBALL PERFORMANCE

Z. V.D. HEEVER[1], H.W. GROBBELAAR[1] AND J.C. POTGIETER[2]

[1] *School of Biokinetics, Recreation and Sport Science*
[2] *School of Psychosocial Behavioural Sciences*
North-West University, Potchefstroom Campus, Potchefstroom, Repuplic of South Africa

SUMMARY

The purpose of this study was to compare junior netball players, from successful and less successful provincial netball teams, regarding their sport psychological skills (SPS). One hundred and forty four (144) female (19.08 ± 1.68 years) South African provincial netball players (81 u/19 players from 8 teams and 63 u/21 players from 6 teams) who participated in the Inter-Provincial Netball tournaments co-hosted by the North-West University, Potchefstroom Campus during 2004 completed the Competitive State Anxiety Inventory (CSAI-2) of Martens et al (1990), the Athletic Coping Skills Inventory-2 (ACSI-28) of Smith et al (1995) and the Psychological Skills Inventory (PSI) of Wheaton (1998). The results show that the successful players obtained better results in 13 of the 19 tested sport psychological variables than the less successful players. Moderate practically significant differences were found between the two groups for peaking under pressure (d = 0.44), cognitive state anxiety direction (d = 0.35) and state self-confidence direction (d = 0.47). A forward stepwise discriminant analysis identified eight of the tested 19 variables as discriminators between successful and less successful players with three of these variables (self-confidence intensity, mental rehearsal and peaking under pressure) reported as significant discriminators between the two groups. The developed prediction functions further proved to be 69.44% effective in classifying the players into their original groups. It should, however, be noted that the role of physiological condition, morphological attributes, technical and tactical abilities as well as decision-making plays a major part and should thus also be taken into account when comparing more and less successful netball players.

INTRODUCTION

Performance improvement in sport can largely be attributed to the application of sport scientific enhancement principles from the areas of sport physiology, biomechanics, morphology and psychology (Rushall, 1989). Psychological aspects are fast being recognized as the most significant contributing factor to success during the preparation and execution phases of sport (Czech et al, 2004), especially in cases where athletes already dispose of optimal physiological, technical and morphological qualities. The identification and development of sport psychological skills (SPS) have subsequently become of great interest to players, coaches, administrators and researchers, due to the relationship that exists between these skills and the development of the athlete, as well as the resulting performance (Golby & Sheard, 2004).

Despite being the most popular woman's sport in South Africa (with 649 820 participants in 1997 (SISA, 1997)), very little research has been conducted on the influence of SPS on netball performance. Therefore, research findings pertaining to the important relationship between SPS and sporting performance in other sports will be highlighted. Researchers studying this relationship tend to compare players from different competitive levels and/or compare players from successful teams with players from less successful teams. Gould et al (1993) concluded that successful athletes exhibit less anxiety immediately before and during competition than their less successful counterparts. Mental rehearsal, concentration, peaking under pressure, goal setting, achievement motivation and activation control were shown by Gird (2005) to positively discriminate between more and less successful soccer players. In a similar vein, the research by Andrew (2006) on u/19 rugby union players showed top-ranked rugby players to have significantly better self-confidence, coping with adversity, activation control as well as achievement motivation levels than lower ranked rugby players. (The u/19 coaching panel from the PRI identified and ranked the top four u/19 players in each playing position for that particular season.)

CORRESPONDENCE

H.W. GROBBELAAR
School of Biokinetics, Recreation and Sport Science
Internal Box 494
North-West University
Potchefstroom Campus
Potchefstroom
South Africa
Tel: (+27) 18 299 1793
Fax: (+27) 18 299 4622
Email: Heinrich.Grobbelaar@nwu.ac.za

KEY WORDS

Netball
Sport psychological skills
Performance

Although various SPS appear to be related to optimal sport performance, only one study by Bock Jonathan et al (2004) of SPS of netball players and its relationship with performance has been conducted. This study concluded that a players' mental toughness is not guaranteed through SPST alone, but that factors such as the coaching style should also be taken into account. Still, it is believed that believed that mental toughness can be improved to a certain extent by acquiring the various sport psychological skills (Pompei, 2004). It is, therefore, the purpose of this study to compare junior netball players from successful and less successful provincial netball teams, regarding their SPS levels. Information of this nature is expected to emphasize the importance of developing sound SPS, similarly to what is done in terms of physical, technical and tactical preparation of players (Thiese & Huddleston, 1999; Bock Jonathan et al, 2004).

METHOD

Sample population

The sample population used in this study consisted of 144 female junior provincial netball players (u/19 = 81 players from eight teams; u/21 = 63 players from six teams), all of whom participated in the A-section of the South African Inter-Provincial Netball Tournaments (u/19 and u/ 21 respectively) co-hosted by the North-West University, Potchefstroom Campus during 2004 (see Table 1). Seventy-nine players (seven teams) were included in the more successful group and 65 players (seven teams) were included in the less successful group. The two groups were chosen and classified as being successful or less successful based on their performances during the above-mentioned tournaments. The more successful group was made up of the top four u/19 and the top three u/21 ranked teams following the tournaments, while the less successful group consisted of the lower four u/19 and lower three u/21 ranked teams. It should be noted that practically significant differences were observed between the two groups for their average age (d = 0.49) and average amount of years (d = 0.55) they've played netball. These observed differences could possibly influence the results of this study.

Procedures of testing

Permission for the study was granted by the Council of Netball South Africa and the Presidents of the various provinces were informed. The testing procedure was communicated to the managers and coaches during the meetings held on the evenings prior to the commencement of the 2004 South African Inter Provincial Netball tournaments. The subjects were also informed about the nature and purpose of the research and were under no obligation to participate in the study. All of the 144 subjects completed informed consent forms. It was specifically mentioned

that no coaches would have access to the individual results. The completion of the set of four questionnaires took approximately 45 minutes. The questionnaires were completed by the participants under supervision of the first two authors of this article.

TABLE 1: Demographical information of the 144 subjects.

		Total tested group (144 players from 14 teams)	**More successful group** (79 players from 7 teams)	**Less successful group** (65 players from 7 teams)
Average age and standard deviation		19.08 ± 1.68 years	19.44 ±1.11 years	18.63 ± 2.11 years
Race	White	71 (49.31%)	43 (54.44%)	28 (43.09%)
	Black	20 (13.89%)	13 (16.45%)	7 (10.76%)
	Coloured	53 (36.80%)	23 (29.11%)	30 (46.15%)
Average amount of years playing		10.06 ± 3.24 years	10.84 ± 3.11 years	9.12 ± 3.17 years

Questionnaires

The players' demographic information (name, surname, race, date of birth and age) was collected by means of a questionnaire. In addition, a total of nineteen sport psychological variables were measured by the following three questionnaires.

The Competitive State Anxiety Inventory (CSAI-2) of Martens et al (1990) is a self-report questionnaire consisting of three nine-item sub-scales measuring the intensity of somatic state anxiety, cognitive state anxiety and state self-confidence. Individual items are rated on a 4-point Likert scale from 0 (*not at all*) to 4 (*very much so*). Sub-scale scoring is additive, although one somatic anxiety item has reverse scoring, yielding sub-scale totals ranging from 9 to 36. In addition, Jones and Swain (1992) included the directional modification of the CSAI-2 to differentiate further between facilitative and debilitative perceptions. The latter section was answered according to a 7-point Likert scale that ranged from 0 (*very debilitative*) to 7 (*very facilitative*). The modified CSAI-2 is considered to be a reliable (r = 0.82 - 0.83 for somatic state anxiety, r = 0.79 - 0.83 for the cognitive state anxiety and r = 0.87 – 0.90 for the state self-confidence scale) and valid instrument to determine the intensity (levels) of cognitive state anxiety, somatic state anxiety and state self-confidence (Ostrow, 1996).

The Athletic Coping Skills Inventory-2 (ACSI-28) of Smith et al (1995) provides a trait-like measure of psychological coping skills thought to be instrumental in improved sporting performance. It is composed of seven underlying SPS factors with subscales measuring coping

with adversity, peaking under pressure, goal setting and mental preparation, concentration, freedom from worry, confidence and achievement motivation, as well as coachability. The subjects were asked to read the statements on the ACSI-28 that describe experiences of other athletes and to recall how often they experience the same thing. Each subscale is composed of four items measured on a 4 point Likert scale from 0 (*almost never*) to 3 (*almost always*). Each of the subscales can, therefore, range from 0 to 12. The results are converted to a percentage score with higher values reflecting better skill levels. Test-retest reliability of the ACSI-28 subscales were found to be r = 0.87 over a one week period for a sample of 97 male and female college athletes. Internal consistency reliability of the ACSI-28 total score was r = 0.86 (Crocker et al, 1998). Preliminary concurrent validity evidence was reported as the subscales were shown to be related to various sport psychological questionnaires (Crocker et al, 1998).

The Psychological Skills Inventory (PSI) of Wheaton (1998) consists of 64 items, measuring six SPS (achievement motivation, goal directedness, activation control, maintaining self-confidence confidence, concentration and mental rehearsal). Each subscale comprises of ten items measured on a 5 point Likert scale from 0 (*never*) to 4 (*always*). Reverse scoring applies in some cases with the subscale scores expressed as percentages. Higher scores also reflect higher SPS levels. Test, retest reliability on the PSI was found to range from r = 0.84 to r = 0.97 (Wheaton, 1998).

Because of the fact that somatic state anxiety, cognitive state anxiety and state self-confidence (as measured by the CSAI-2) are psychological outcomes, and not psychological skills, all of the above SPS and outcomes will collectively be referred to as sport psychological variables when reporting and discussing the results.

Statistical Analysis

The Statistical Data Processing package (StatSoft Inc., 2004) was used to process the data. The descriptive statistics (average and standard deviation) for each of the 19 variables of both groups were calculated. Practically significant differences between the two groups were determined by means of effect sizes (ES). ES were used. since the subject group was not randomly selected. Caution should. therefore, be taken when generalizing the results of this study to other netball groups. ES are determined as follows:

$$ES = (M_1 - M_2)/s$$

Here, M_1 = the mean of the first group in the comparison, M_2 = the mean of the second group in the comparison, and s = the standard deviation. Thomas and Nelson (2001) recommend that the pooled standard deviation (Sp) be used in research designs such as the present one:

$$s_p = \sqrt{\frac{s_1^2(n_1-1)+s_2^2(n_2-1)}{n_1+n_2-2}}$$

Here s_1^2 = the variance of the players in the first group, s_2^2 = the variance of the players in the second group, n_1 = the number of players in the first group and n_2 = the number of players in the second group. Effect sizes are expressed as Cohen's d-value and can be interpreted as follows: an ES of more or less 0.8 is large, an ES of more or less 0.5 is moderate, and an ES of more or less 0.2 is small (Thomas & Nelson, 2001).

Next, a forward stepwise discriminant analysis was performed to determine the sport psychological variables that discriminate the best between the two groups of players (more successful and less successful players). From this a classification matrix was compiled to calculate which percentage of the players could be classified into their original respective groups by means of the various prediction functions. The level of significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

The descriptive statistics (averages and standard deviations) and the effect size results (practical significance) of the more and less successful netball groups are presented in Table 2. It is clear that the more successful group obtained better results than the less successful group in 13 of the 19 (68.42%) sport psychological variables measured in this study. Furthermore, the effect size results revealed moderately significant differences between the two groups for three of the psychological variables (peaking under pressure (d = 0.44) and the directional influence of perceived cognitive state anxiety (d = 0.35) and state self-confidence (d = 0.47) towards performance). In all three cases the more successful players showed better results than the less successful group. Roteller and Lerner (1993) previously noted that high levels of pressure develop when players perceive an event as being important. It, therefore, seems as if better players are more effective at delivering peak performance under high-pressure situations such as national championships. Gird (2005) also reported peaking under pressure as an important discriminator between successful and less successful soccer players, with the more successful players showing greater skill levels than their less successful counterparts. In addition to the above findings, competitive situations may result in high levels of anxiety and tension, which may affect performance negatively while Jones (1995) showed however that an individuals' interpretation of anxiety and self-confidence (their perception thereof as either being facilitative or debilitative) plays an even more important role in the resulting performance than the anxiety and self-confidence levels. This is highlighted by the current research findings showing more

successful players to have significantly greater facilitative perceptions of their cognitive state anxiety and state self-confidence levels than the less successful players.

TABLE 2: Descriptive statistics (average and standard deviation) and effect size results of the 19 tested sport psychological variables for the respective netball groups.

Questionnaire and psychological variables	Average and standard deviation (M± SD)		Practical significance (Cohen's d – value)
	More successful group (n = 79)	Less successful group (n = 65)	
Competitive State Anxiety Inventory –2 (Martens et al 1990)			
Cognitive state anxiety intensity ➢	22.20 ± 5.50	22.91 ± 4.85	-0.14
Somatic state anxiety intensity	26.24 ± 5.28	25.94 ± 5.20	0.22
State self-confidence intensity	20.34 ± 6.23	19.05 ± 5.14	0.06
Cognitive state anxiety direction	41.46 ± 8.50	39.74 ± 9.44	0.35*
Somatic state anxiety direction	39.54 ± 8.43	36.43 ± 9.44	0.19
State self-confidence direction	47.80 ± 8.78	43.34 ± 10.48	0.47*
Athletic Coping Skills Inventory –28 (Smith et al 1995)			
Coping with adversity	60.66 ± 10.11%	61.05 ± 20.29%	-0.02
Peaking under pressure	53.91 ± 20.06%	45.13 ± 19.48%	0.44*
Goal-setting/mental preparation	54.98 ± 26.40%	56.66 ± 23.46%	-0.07
Concentration	67.09 ± 16.23%	61.69 ± 21.57%	0.29
Freedom from worry	47.60 ± 24.32%	52.05 ± 24.79%	-0.18
Confidence and achievement motivation	50.74 ± 13.94%	49.36 ± 11.99%	0.11
Coachability	60.87 ± 15.30%	57.05 ± 17.01%	0.24
Psychological Skills Inventory (Wheaton, 1998)			
Achievement motivation	77.15 ± 12.45%	75.81 ± 11.89%	0.11
Goal directedness	63.80 ± 18.92%	67.12 ± 16.35%	-0.19
Activation control	58.45 ± 15.33%	58.88 ± 15.34%	-0.03
Maintaining self-confidence	62.59 ± 15.63%	60.54 ± 14.70%	0.13
Concentration	64.02 ± 13.19%	63.08 ± 15.31%	0.07
Mental rehearsal	57.18 ± 19.62%	62.04 ± 14.53%	-0.28

➢ Lower values reflect better scores
Remaining variables: Higher values reflect better results

* Moderately significant practical differences (d-values more or less 0.5)

It is interesting to note that the less successful group had slightly better coping with adversity and activation control scores, experienced less worries, were more goal-directed (and better at goal-setting) and had better mental rehearsal/mental preparation scores than the successful group. None of these differences were practically significant.

Past research by Thelwell and Maynard (2002) found that most participants in ball sports rank mental rehearsal highly as a contributor to optimal performances, while Murphy (1994) indicated that successful athletes are more likely to engage in mental processes and the use

thereof as a problem solving strategy than their less successful counterparts. Contrary to these findings, and inexplicably so, our results showed the opposite, in that the less successful players made more effective use of mental rehearsal. Callow and Hardy (as quoted by Cumming and Hall, 2002) does, however, argue that both novice and professional netball players would benefit from using motivational specific imagery. Despite our results, mental rehearsal remains an important SPS.

Goal-setting and directing one's efforts to reach those goals, has also been shown to be highly effective and important for increased performance (Weinberg & Gould, 2003). Inexplicably, two of the questionnaires used in this study showed the less successful players to be more effective at setting goals and be more goal-directed than the more successful players. However, reviewers have concluded that goal-setting works and works extremely well when implemented with thought, understanding of the process and thorough planning (Lock & Latham, 1985; Locke, 1991; Locke, E.A., 1995). Weinberg and Gould (2003) further proved goal setting to be effective, as the effect thereof has remained consistent in research with over 40,000 participants, using over 90 different tasks and across ten different countries and is believed to be a powerful performance enhancing technique. Despite our results it is believed to be a powerful performance enhancing technique.

Next a forward stepwise discriminant analysis was performed and it is clear that three variables (self-confidence intensity, mental rehearsal and peaking under pressure) are significant discriminators between successful and less successful netball players (see Table 3). Self-confidence is considered by many to be the key factor in successful performance and, is therefore, one of the most frequently cited sport psychological factors related to performance (Covassin & Pero, 2005). Results of Treasure et al (1996) suggested that athletes who enter competitions with higher self-confidence are more likely to be successful, possibly because they believe in their own ability to perform well. Therefore, according to Covassin and Pero (2005), creating a positive mental outlook or expectation for success may contribute strongly to the overall success. These researchers also suggested that self-confidence can be linked to creating a self-fulfilling prophecy or mindset that enhances the player's ability to either profit from positive events and/or reduce the impact of negative events during the competition. The role of the player's ability to peak under pressure, and their use of mental rehearsal as variables that discriminate between the two groups (although contradictingly so in the case of mental rehearsal), have already been addressed.

TABLE 3: Results of the forward stepwise, discriminant analysis (N = 144)

Questionnaire	Variables	F - value	p - value
CSAI -2	Self-confidence intensity	5.38	0.022*
PSI	Mental rehearsal	6.39	0.013*
ACSI -28	Peaking under pressure	6.03	0.015*
PSI	Activation control	3.41	0.067
ACSI -28	Concentration	2.50	0.116
CSAI -2	Somatic anxiety intensity	2.35	0.127
CSAI -2	Cognitive anxiety intensity	2.35	0.128
ACSI -28	Freedom from worry	1.41	0.237

*$p < 0.05$

After identifying the various discriminating variables, the following prediction functions were compiled.

- More successful netball players = 0.4689(state self-confidence intensity (CSAI –2)) + 0.1053 (mental rehearsal (PSI)) - 0.0277 (peaking under pressure (ACSI –28)) + 0.3531 (activation control (PSI)) + 0.0828(concentration (ACSI –28)) + 0.3890 (somatic state anxiety intensity (CSAI –2)) + 1.9576 (cognitive state anxiety intensity (CSAI –2)) +0.1011 (freedom from worry (ACSI –28)) – 55.2616
- Less successful netball players = 0.4160 (state self-confidence intensity (CSAI –2)) + 0.1345 (mental rehearsal (PSI)) - 0.0580 (peaking under pressure (ACSI –28)) + 0.3929 (activation control (PSI)) + 0.0636(concentration (ACSI –28)) + 0.3355(somatic state anxiety intensity (CSAI –2)) + 2.0308 (cognitive state anxiety intensity (CSAI –2)) +0.1141(freedom from worry (ACSI –28)) – 55.6275

The players' results were then placed in each of the formulas. Table 4 reports on the determination of the accuracy of the above functions, by indicating which percentage of the players in each group (and overall) could be placed back into their original groups.

The classification matrix reports that 69.44% of the total tested players could be classified into their original groups again. Therefore, it is evident that the identified sport psychological variables used in the prediction functions are accurate discriminators between more and less successful netball players.

TABLE 4: The classification matrix of the two groups to indicate which percentage of the players could be classified into their original respective groups by means of the prediction functions.

Group	Group 1	Group 2	Percentage correct
Group 1: More successful netball players	61	18	77.21%
Group 2: Less successful netball players	26	39	60.00%
Total:	87	57	69.44%

CONCLUSIONS AND RECOMMENDATIONS

The comparison between the two groups (more successful and less successful players) showed that three of the total tested sport psychological variables (i.e. cognitive state anxiety direction, state self-confidence direction and peaking under pressure) obtained moderate practical significance as discriminating variables. In total, the more successful group had better average values than the less successful group for 13 of the 19 tested variables. Furthermore, eight of the tested 19 variables were identified as discriminators between successful and less successful netball players, while the prediction functions proved to be 69.44% effective in classifying the players into their original groups.

The importance of sound SPS is stressed by the finding that certain sport psychological variables are effective in distinguishing more successful from less successful netball players or teams. Despite these findings, the findings of Weinberg and Gould (2003), who stated that players should not be selected for certain teams based solely on their sport psychological profiles should be kept in mind. Physique, strength, speed and skill levels should remain the primary selection criteria (Cox & Yoo, 1995). However, once a player has received a favourable evaluation of the above factors, investment in the development of SPS should prove to be beneficial to enhance performance. The results, therefore, warrant the development and implementation of specific SPST programmes to address certain shortcomings and thereby improve netball performance.

In the present study, sport psychological variables were tested (as independent variables) on an individual level, while team results were used (as the dependent variable) to classify players into two groups (more successful or less successful groups). This study, therefore, highlights how individual sport psychological skills contribute to the team's performance. It is however, strongly recommended that other variables should also be included in future studies, in order to identify on different levels, those factors that contribute to performance in this sport.

Group factors, such as team cohesion, team dynamics, social interaction, etc. should be investigated as they also relate to the teams' performance. The role of physiological condition, morphological attributes, technical and tactical abilities, decision-making, etc. also plays a major part and should thus be included to provide a more holistic picture of this particular population. The present study does, however, give an indication of the importance of sport psychological variables, and thus provides a basis for further research aimed at investigating the contribution of various other factors to the resulting performance of netball players.

ACKNOWLEDGEMENTS

The authors hereby acknowledge the Council of Netball South Africa, the organizing committee of the various Inter-Provincial Netball tournaments (in particular Helene Botha), all team managers, coaches and participants of the project. The financial assistance of the Institute for Sport Science and Development at the North-West University, Potchefstroom Campus is gratefully appreciated.

REFERENCES

ANDREW, M. (2006).

Sport psychological skills that distinguish between u/19 club rugby players of different participation levels and positional groups.

Unpublished M.Sc. dissertation.

North-West University, Potchefstoom, South Africa. 61p.

BOCK JONATHAN, B., GRUNDLINGH, A. AND LE ROUX, M. (2004).

Exploring mental toughness in netball players.

In Proceedings: Young researcher seminar (Sport science)

Innsbruck, Austria 23-26 September, (Edited by C. Raschner, A. Niederkofler, M. Redl and M. Schnitzer). pp. 59-68.

COVASSIN, T. AND PERO, S. (2005).

The relationship between self-confidence, mood state, and anxiety among collegiate tennis players.

*J. Sport Beh., **27(3)**: 200-239.*

COX, R.H. AND YOO, H.S. (1995).

Playing position and psychological skills in American football.

*J. Sport Beh., **18(3)**: 183-195.*

CROCKER, P.R.E., KOWALSKI, K.C. AND GRAHAM, T.R. (1998).

Measurements of coping strategies in sport.

(*In Duda, J.C., ed. Advances in sport and exercise psychology measurement).*

Fitness Information Technology, Inc. pp. 149-161.

CUMMING, J. AND HALL, C. (2002)

Athlete's use of imagery in the off-season.

*The Sport Psychol., **16(2)**: 160-172*

CZECH, D.R., PLOSZAY, A.J AND BURKE, K.L. (2004).

An examination of the maintenance of preshot routines in basketball free throw shooting.

*J. Sport Beh., **27(4)**: 323-329.*

GIRD, C. (2005).

Fisieke, Motoriese, Antropometriese and Sport Psigologies veranderlikes wat diffrensieer tussen sokkerspelers van verskilende deelname vlakke.

[Physical, Motor, Anthropometrical and Sport Psychological variables differentiating between soccer players of different participating levels].

Unpublished M.A. dissertation.

North-West University, Potchefstroom. South Africa. 93p.

GOLBY, J. AND SHEARD, M. (2004).

Mental toughness and hardiness at different levels of rugby league.

*Pers. Indiv Diff., **37(5)**: 933-942.G*

GOULD, D., EKLUND, R.C AND JACKSON, S.A. (1993).

Coping strategies used by U.S. Olympic wrestlers.

*Res. Q. Exerc. Sport., **64(1):** 83-93.*

JONES, T. (1995).

Players and teams know there is great strength in brainpower.

*Sporting News, **229(10)**: 50*

JONES, J.G. AND SWAIN, A. (1992).

Intensity and direction as dimensions of competitive state anxiety and relationships with competitiveness.

*Percept. Motor Skills, **74(2)**: 467-472.*

LOCKE, E.A., (1991).

Problems with goal-setting research in sport –and their solution.

*J.Sport & Exercise Psychol., **8(3)**: 311-316*

LOCKE, E.A., (1995).

The effects of goal-setting, self-efficacy, competition and personal traits on the performance of an endurance task.

*J. Sport & Exercise Psy., **7(2)**: 138-152*

LOCKE, E.A. AND LATHAM, G.P. (1985).

The application of goal-setting to sports.

J. Sport Psy., 7(3): 205-222.

MARTENS, R., VEALY, R.S. AND BURTON, D. (1990).

Competitive anxiety in sport.

Human Kinetics Publishers: Champaign IL, 288p.

MURPHY, S.M. (1994).

Imagery interventions in sport.

*Med. Sci. Sports and Exercise, **26(4)**: 486-494.*

OSTROW, A.C. (1996).

Directory of Psychological Tests in the sport and exercise science (2nd ed.).

W.Va.: Fitness Information Technology Inc.

POMPEI, D. (2004).

Greatness follows toughness at quarterback.

*Sport News, **228(40)**:41-43.*

RUSHALL, B.S. (1989).

Sport psychology: The key to sporting excellence.

*Inter. J. Sport Psychol., **20(3)**: 165-190.*

ROTELLER, J.R. AND LERNER, J.D. (1993).

Responding to competitive pressure, In R.N. Singer, M. Murphey, & L.K. Tennant (Eds.).

Handbook of research on sport psychology (pp.528-541).

New York: Macmillan Publishing Company.

SISA see SPORTS INFORMATION AND SCIENCE AGENCY

SMITH, R.E., SCHUTZ, R.W., SMOLL, F.L. AND PTACEK, J.T. (1995).

Development and validation of a multidimensional measure of sport specific psychological skills: the Athletic Coping Skills Inventory – 28.

*J. Sport & Exercise Psy., **17(4)**: 379-398.*

SPORTS INFORMATION AND SCIENCE AGENCY. (1997).

Research on the participation of women in South Africa.

BMI Sport Info (Pty) Ltd. 75p.

STATSOFT, INC. (2004).

Statistica (data analysis software system), version 6.[http:// www.statsoft.com

THELWELL, R.C. AND MAYNARD, I.W. (2002).

Professional cricketers' perception of the importance of antecedent influencing repeatable good performance.

Percept. Motor Skills, ***90(2)****: 649-658.*

THIESE, K.E. AND HUDDLESTON, S. (1999).

The use of psychological skills by female collegiate swimmers.

J. Sport Behav., ***22(4)****: 602-610.*

THOMAS, J.R. AND NELSON, J.K. (2001).

Research methods in physical activity. 4th ed.

Champaign, IL: Human Kinetics Publishers. 449p.

TREASURE, D., MONSON, J. AND LOX, C. (1996).

Relationship between self-efficacy, wrestling performance, and affect prior to competition.

The Sport Psychologist, ***10****: 3-83.*

WEINBERG, R. AND GOULD, D. (2003).

Foundations of sport and exercise psychology. 3rd ed.

Champaign, IL: Human Kinetics Publishers. 585p.

WHEATON, K.A. (1998).

A psychological skills inventory for sport.

Unpublished M.A. dissertation.

University of Stellenbosch, Stellenbosch, South Africa. 156p.

4

Summary, Conclusions, Recommendations and Shortcomings

AFRICAN JOURNAL FOR PHYSICAL, HEALTH EDUCATION, RECREATION AND DANCE (AJPHERD)

AUTHOR GUIDELINES

The African Journal for Physical, Health Education, Recreation and Dance (AJPHERD) publishes research papers that contribute to knowledge and develop theory either as new information, reviews, confirmation of previous findings, application of new teaching/coaching techniques and research notes. All manuscripts should be sent to the Editor-In-Chief. These must represent original works, which have not been submitted or published elsewhere. Authors are normally advised about the decision on their manuscripts within 60 days. Authors are, however, reminded to return revised edition soonest.

PREPARATION OF MANUSCRIPTS

Authors should submit three copies of the manuscripts written in English and typed space on one side with generous margins. In general, manuscripts should not exceed 10 pages in A-4 size paper including a concise abstract of not more than 200 words. Diagrams, tables, charts and plates should be simple and appear at appropriate sections in the text. Longer manuscripts may be accepted for multiple studies and reviews. Key words must be included at the end of the abstract.

The first page of the paper should show the title, author's name/authors name and address(s). Authors are advised to include their telephone and fax numbers, and e-mail addresses. Multiple authors should be listed in order of proportionate work commitment. The next page of the manuscript should begin with the, abstract and introduction in that order. All manuscripts must conform to the Publication Manual of the American Psychological Association (4th ed). Manuscripts deviating from the recommended form will neither be reviewed nor returned. On final acceptance of a manuscript, the author(s) will be requested to submit a computer disk with file stored in Microsoft Word 6.0. Manuscripts should be prepared in the following order: (1) title page (2) abstract (3) text including tables, figures etc., (4) references and (5) author notes (if any).

PROOFREADING

The author may receive page proofs for corrections when necessary before publication. In case of multiple authors, proofs will be sent to the first listed author unless otherwise advised. Proofreading of manuscripts should be thoroughly done.

COPYRIGHT AND PERMISSION TO REPRINT

LAP Publications Ltd. holds the copyright for AJPHERD. In keeping with copyright laws, authors may be required whenever legally possible, to assign the copyright of accepted manuscripts to LAP Publications Ltd. This ensures that both the publishers and the authors are protected from misuse of copyright materials. Permission for copyright requests should be addressed to the Editor-in-Chief.

REPRINTS

On publication, a copy of AJPHERD containing the article of the author will be sent to the author and in case of multiple authors, to the principal author.

CORRESPONDENCE

All correspondence concerning manuscripts and editorial materials should be directed to the Editor-In-Chief, Professor L. O. Amusa, Centre for Biokinetics, Recreation and Sport Science, University of Venda for Science and Technology, P. Bag X5050, Thohoyandou 0950, South Africa; E-mail: amusalbw@yahoo.com

SUBMISSION PREPARATION CHECKLIST (ALL ITEMS REQUIRED)

The submission has not been previously published nor is it before another journal for consideration; or an explanation has been provided in Comments to the Editor.

COPYRIGHT NOTICE

Copyright for articles published in this journal is retained by the journal.

PRIVACY STATEMENT

The names and email addresses entered in this journal site will be used exclusively for the stated purposes of this journal and will not be made available for any other purpose or to any other party.

JOURNAL OF HUMAN MOVEMENT STUDIES (JHMS)

GUIDELINES FOR CONTRIBUTORS

SUBMISSION OF PAPERS

The purpose of the Journal is to serve as a forum for original papers and research reports which contribute to the understanding of human movement. Areas of enquiry may extend across topics as diverse as movement in communication, aesthetic evaluation of human movement, physiological determinants of movement behaviour, techniques for the analysis of human movement, comparative studies in movement, etc. Animal studies are only acceptable if they have implications for the study of human movement.

Persons wishing to submit papers for consideration by the editorial boards should send three copies of their paper to: Dr W. J. Irvine, c/o Teviot Scientific Publications Ltd, 8A Randolph Crescent, Edinburgh, EH3 7TH, UK.

PRESENTATION OF MANUSCRIPTS

Papers should be admitted in good English. The order of presentation of original manuscripts is as follows: title/summary page, introduction, methods, results, discussion, tables/figures/photographs and references. The summary should be approximately 200 words and the pages should be numbered consecutively. Where possible, manuscripts should be presented on 3.5" computer discs preferably using MicroSoft Word 98 or 2001 for Macintosh or for Windows, or Pagemaker 6.5 or 7.0 for Macintosh. Failing this, manuscripts will be scanned in and must therefore be typed in a standard font (such as Times) using double spacing on A4 sheets with wide margins. Authors should avoid the use of bold, italics,

underlining and full caps when preparing manuscripts. Reviews should be accompanied by a summary.

The title page should be laid out as follows: title of paper, names of authors (without qualifications or title), institutions and full address for correspondence. Authors should provide a fax number or e-mail where available.

If possible figures should be submitted on 3.5" discs in the original graphics program (with a note to the editor stating the program used) and also as glossy prints on good quality paper. Figures should be numbered consecutively throughout the paper. The name of the first author and figure number should appear on the reverse of the figure and they should be at least twice the size they are to appear in print. Half-tones must be of first-class quality and on glossy paper. Tables should appear on a separate sheet and must be numbered consecutively. They should be set using a table editor function (using cells rather than tabs or bar spacing). Figures and tables should have self-explanatory legends presented on a separate sheet.

Footnotes numbered consecutively in the text using subscripts should be presented on a separate sheet at the end of the paper. They should be kept to a minimum.

References should appear in the format of the examples given below.

Kennedy, M.D.J. and Bell, G.J. (1996).

Measurement of heart rate response during a 55km cross country ski race.

***Journal of Human Movement Studies*, 31: 161-177.**

Kelso, J.A.S. and Ding, M. (1993).

Fluctuations, intermittency and controllable chaos in biological coordination.

In Variability and motor control.

Human Kinetics, (Edited by K.M. Newell and D.M. Corcos), Champaign, IL., pp. 291-316.

Proofs should be checked meticulously and sent back by return. The Editors' decision on acceptance of Authors' corrections to proof is final.

The cost of reprints to authors is indicated at the page proof stage, when they may be ordered. Authors are expected to purchase a minimum of 50 offprints. Regrettably there are no free offprints.

Authors are responsible for obtaining permission to reproduce material from other sources.

YUNIBESITI YA BOKONE-BOPHIRIMA
NORTH WEST UNIVERSITY
NOORDWES UNIVERSITEIT

ISSD·ISWO
Institute for Sport Science and Development
Instituut vir Sportwetenskap en -ontwikkeling

NORTH-WEST UNIVERSITY, POTCHEFSTROOM CAMPUS. INSTITUTE FOR SPORT SCIENCE AND DEVELOPMENT. NETBALL PROJECT 2004: SPORT PSYCHOLOGICAL SKILLS. INFORMED CONSENT FROM: (PLAYERS).

I, _____ hereby declare that the person taking the test, Heinrich Grobbelaar/ Zelna van den Heever has informed me:

- On the nature of the testing
- On the purposes thereof
- That all data will be dealt with confidentially. No individual results will be made public to any party other than myself.
- That I will receive a report on my individual testing as well as well as a brief summary of the project's results.
- That I have the right to refuse participating in the project.

I further give consent that the results may be used for the following purposes:

Please mark each of the applicable responses with an (X)		
1	Compiling of and individual report	
2	Compiling a report on the results of the whole tested group, with anonymity guaranteed.	
3	For research purposes (anonymity guaranteed)	

Signed in Potchefstroom,

On this the _____ day of _____ 2004

_____ _____

Players' signature Person taking the test

NORTH-WEST UNIVERSITY, POTCHEFSTROOM CAMPUS. INSTITUTE FOR SPORT SCIENCE AND DEVELOPMENT.

NETBALL PROJECT 2004: SPORT PSYCHOLOGICAL SKILLS.

PLAYER QUESTIONNAIRE.

Section A: Demographic Information

1	Record number (for office use)												
2	Name:												
	Surname:												
3	Birth date:	19	Y	y	m	m	d	d					
4	Current Age:								Years				
									Months				
5	Race (for statistical purposes)								Asian	1			
									Black	2			
									Coloured	3			
									White	4			
6	Which provincial team are you representing during this tournament?												
7	In which age group are you participating?								u/19	1			
									u/21	2			
									Seniors	3			
	Postal Address												
	Postal Code												
	Contact Details	Telephone (Home)											
		Telephone (Work)											
		Cell phone											
		E-mail											

Section B: Netball History				
8	For how many years have you been playing netball?			yrs
	Indicate your previous and current representative levels of netball and in which year(s) you participated at each level.			
	Team you represented	Mark with an X	Year(s)	
9	u/19 Provincial			
10	u/19 National			
11	u/21 Provincial			
12	u/21 National			
13	Senior Provincial			
14	Senior National			
15 - 18	Indicate the position you are playing in during this tournament as well as your favourite position(s) in preferred order (i.e. 1, 2, 3).	Positions	Current (X)	Preferred (1, 2, 3)
		GS *(D)*		
		GA *(HD)*		
		WA *(AV)*		
		C *(S)*		
		WD *(VV)*		
		GD *(HV)*		
		GK *(V)*		

Section C: Sport Psychology Background				
19	Have you ever visited a sport psychologist?	Yes		
		No		
20	Have you ever been part of a team who was exposed to Sport Psychological Skill Development Programs?	Yes		
		No		
21	If so, how often were these programs implemented?	Once of		1
		Weekly		2
		Monthly		3
		6-monthly		4
		Yearly		5
		No fixed pattern		6
	Which of the following topics were covered during these session?	22	Positive self-talk	
		23	Goal setting	
		24	Visualization (Imagery)	
		25	Team cohesion/ Team spirit	
		26	Enhancing commitment	
		27	Psychological skills to cope with various match situations	
		28	Self-confidence	
		29	Concentration skills	
		30	Stopping and replacing negative thoughts	
		31	Muscle relaxation	
		32	Music for relaxation	
		33	Pre-competition routines	
		34	Psychological strategies for the match	
		35	Performance analysis after matches to improve the next performance	
		Other topics	36	
			37	
			38	

Section C: Sport Psychology Background (Continued)			
39	In your opinion, how important are the Development of Sport Psychological Skills in order to achieve optimal performances in Netball?	Very important	5
		Important	4
		Neutral	3
		It can help, but it is not important	2
		It is a waste of time	1
40	To what extent are you able to prepare yourself psychologically for competitions?	Very good	5
		Good	4
		Average	3
		Below Average	2
		Poor	1
41	To what extent do you have a need for Sport Psychological Skill Development Programs in order to enhance your Netball performance?	I have a great need	5
		I have a need	4
		Uncertain	3
		No need	2
		Definitely no need	1
42	What specific aspects of Sport Psychological Skills Training would you like to be addressed by your coaches and Netball South Africa?		
43	Complete the following sentence: In order to achieve better and more consistent results, psychologically I need to be...		

Section D: Evaluation of your provincial coach's ability to provide sport psychological guidance and to implement certain sport psychological skills.

	Please rate your current provincial coach (answer with an X) on his/her ability to implement the following Sport Psychological Skills or to give guidance in that regard.	Not able to rate my coach due to my own limited understanding of the skill	Poor	Below Average	Average	Good	Excellent
44	Positive self-talk	NA	1	2	3	4	5
45	Goal setting	NA	1	2	3	4	5
46	Visualization (Imagery)	NA	1	2	3	4	5
47	Team cohesion/Spirit	NA	1	2	3	4	5
48	Commitment enhancement	NA	1	2	3	4	5
49	Psychological skills to cope with various match situations	NA	1	2	3	4	5
50	Self-confidence	NA	1	2	3	4	5
51	Concentration skills	NA	1	2	3	4	5
52	Stopping and replacing negative thoughts	NA	1	2	3	4	5
53	Muscle relaxation	NA	1	2	3	4	5
54	Music for relaxation	NA	1	2	3	4	5
55	Pre-competition routines	NA	1	2	3	4	5
56	Psychological strategies for the match	NA	1	2	3	4	5
57	Performance analysis after matches to improve the next performance	NA	1	2	3	4	5

Competitive State Anxiety Inventory-2 (CSAI-2)

DIRECTIONS: A number of statements that sport competitors have used to describe their feelings before competitions, are given below. The Questionnaire is divided into two sections. Read each statement and then circle the appropriate number to the right of the statement on the scale from 1 to 4 to indicate how you felt 5 minutes **before the most important competition you have ever competed in**. Then, for each statement, circle an appropriate number on a scale from 1 to 7 to signify how facilitative [positive] or debilitative [negative] you perceive your response to be. There are no right or wrong answers. Do not spend too much time on any one statement.

	Not at all	Some what	Moderately so	Very much so	Very Debilitative (Negative effect)						Very Facilitative (Positive effect)
1. I am concerned about this competition.	1	2	3	4	1	2	3	4	5	6	7
2. I feel nervous.	1	2	3	4	1	2	3	4	5	6	7
3. I feel at ease.	1	2	3	4	1	2	3	4	5	6	7
4. I have self-doubts.	1	2	3	4	1	2	3	4	5	6	7
5. I feel jittery.	1	2	3	4	1	2	3	4	5	6	7
6. I feel comfortable.	1	2	3	4	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could.	1	2	3	4	1	2	3	4	5	6	7
8. My body feels tense.	1	2	3	4	1	2	3	4	5	6	7
9. I feel self-confident.	1	2	3	4	1	2	3	4	5	6	7
10. I am concerned about losing.	1	2	3	4	1	2	3	4	5	6	7
11. I feel tense in my stomach.	1	2	3	4	1	2	3	4	5	6	7
12. I feel secure.	1	2	3	4	1	2	3	4	5	6	7
13. I am concerned about choking under pressure.	1	2	3	4	1	2	3	4	5	6	7
14. My body feels relaxed.	1	2	3	4	1	2	3	4	5	6	7
15. I am confident I can meet the challenge.	1	2	3	4	1	2	3	4	5	6	7
16. I'm concerned about performing poorly.	1	2	3	4	1	2	3	4	5	6	7
17. My heart is racing.	1	2	3	4	1	2	3	4	5	6	7
18. I am confident about performing well.	1	2	3	4	1	2	3	4	5	6	7
19. I am worried about reaching my goal.	1	2	3	4	1	2	3	4	5	6	7
20. I feel my stomach sinking.	1	2	3	4	1	2	3	4	5	6	7
21. I feel mentally relaxed.	1	2	3	4	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance.	1	2	3	4	1	2	3	4	5	6	7
23. My hands are clammy.	1	2	3	4	1	2	3	4	5	6	7
24. I feel confident, because I mentally picture myself reaching my goal.	1	2	3	4	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate.	1	2	3	4	1	2	3	4	5	6	7
26. My body feels tight.	1	2	3	4	1	2	3	4	5	6	7
27. I'm confident of coming through under pressure.	1	2	3	4	1	2	3	4	5	6	7

Athletic Coping Skills Inventory – 28 (ACSI-28)

Below you'll find a few statements athletes' use to describe their sporting experiences. Read through each of these statements and recall how often you experience the same aspects. It is important that you answer each question as truthfully as possible. False or inaccurate questions will indicate the wrong coaching methods for you. There is no right or wrong answers, so don't spend too much time on any one answer. Cross out the one answer that is most applicable to you.

1. On a daily or weekly basis, I set very specific goals for myself that guide what I do.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
2. I get the most out of my talent and skills.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
3. When a coach or manager tells me how to correct a mistake I've made, I tend to take it personally and feel upset.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
4. When I am playing sports, I can focus my attention and block out distractions.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
5. I remain positive and enthusiastic during competition, no matter how badly things are going.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
6. I tend to play better under pressure because I think more clearly.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
7. I worry quite a bit about what others think about my performance.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
8. I tend to do lots of planning about how to reach my goals.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
9. I feel confident that I will play well.
   0 Almost never 1 Sometimes 2 Often 3 Almost always
10. When a coach or manager criticizes me, I become upset rather than helped.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
11. It is easy for me to keep distracting thoughts from interfering with something I am watching or listening to.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
12. I put a lot of pressure on myself by worrying how I will perform.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
13. I set my own performance goals for each practice.
    0 Almost never 1 Sometimes 2 Often 3 Almost always

14. I don't have to be pushed to practice or play hard; I give 100%
    0 Almost never 1 Sometimes 2 Often 3 Almost always
15. If a coach criticizes or yells at me, I correct the mistake without getting upset about it.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
16. I handle unexpected situations in my sport very well.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
17. When things are going badly, I tell myself to keep calm, and this works for me.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
18. The more pressure there is during a game, the more I enjoy it.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
19. While competing, I worry about making mistakes or failing to come through.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
20. I have my own game plan worked out in my head long before the game begins.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
21. When I feel myself getting too tense, I can quickly relax my body and calm myself.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
22. To me, pressure situations are challenges that I welcome.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
23. I think about and imagine what will happen if I fail or screw up.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
24. I maintain emotional control no matter how things are going for me.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
25. It is easy for me to direct my attention and focus on a single object or person.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
26. When I fail to reach my goals, it makes me try even harder.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
27. I improve my skills by listening carefully to advice and instruction from coaches and managers.
    0 Almost never 1 Sometimes 2 Often 3 Almost always
28. I make fewer mistakes when the pressure is on because I concentrate better.
    0 Almost never 1 Sometimes 2 Often 3 Almost always

Psychological Skills Inventory (PSI)

In order for you to get some use from this questionnaire it is important that you respond to the statements as honestly as possible. Information provided by you is confidential and will not be available to any person other than yourself and the sport psychologist.

- This questionnaire consists of a number of statements about the experience of competitive sport.
- Read each statement carefully then indicate how it applies to you when you compete in important competitions.
- There are no correct or incorrect answers. All you are required to do is to consider each statement in terms of your own sporting experience.

1. I can persevere at my sport, even when I am very tired.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
2. I set goals for my sport.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
3. Before I compete in important competitions I worry about not performing well.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
4. If I lose confidence during a competition I know how to recover it.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
5. I use fixed routines of rituals before competitions.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
6. I set aside specific times to practise my sport in my imagination (visualisation/imagery).
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
7. If the odds are against winning, I am still able to produce my best effort.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
8. On a daily or weekly basis I set very specific goals for myself that guide what I do.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
9. I worry about making mistakes in important competitions.
   0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
10. I feel threatened by important competitions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
11. During a competition I continue to concentrate well even after making a mistake.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

12. I can clearly visualise my future sport performances in my imagination.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
13. If I get behind in a competition, I feel that winning is impossible.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
14. I set realistic, but challenging goals for my sport.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
15. The more important the competition, the more enjoyable it is for me.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
16. Before important competitions I am confident that I can handle the pressure.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
17. I have trouble concentrating during important competitions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
18. I find it difficult to visualise clear mental pictures of my sport in my imagination.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
19. I am able to bounce back quickly after a disappointing performance.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
20. I write down my goals for my sport.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
21. I enjoy the challenges of important competitions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
22. I experience thoughts of failure during important competitions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
23. When unexpected things happen during important competitions it disrupts my concentration.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
24. I visualise my sport in my imagination during practice sessions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
25. I strive for better performances.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
26. I monitor the progress towards my goals.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
27. I can control my nervousness before important competitions.
    0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

28. Before important competitions I am confident that I can meet the challenges.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

29. My concentration lets me down during important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

30. I visualise my sport in my imagination during competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

31. I am good at motivating myself.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

32. I set specific goals for each practice session.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

33. I can handle the unexpected stress during important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

34. I have doubts about my ability in sport.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

35. My thoughts interfere with my performance during important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

36. I visualise my sport in my imagination just before going into important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

37. I am motivated to excel in my sport.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

38. I set specific goals for every competition.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

39. I worry about failing in important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

40. My confidence tends to drop as an important competition draws nearer.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

41. I can effectively block out negative thoughts during important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

42. I visualise dealing with setbacks and coping with difficult situations in my sport.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

43. I look forward to important competitions.
0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

44. My specific goals are structured to lead me to my eventual long-term goal.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

45. I know how to make myself relax in difficult situations.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

46. When I begin to perform poorly, my confidence drops quickly.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

47. Negative remarks by other people (such as spectators or opponents) upset me during important competitions.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

48. I use visualisation in the period just before the beginning of a competition.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

49. I am a tough competitor.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

50. My goals all have deadlines attached to them.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

51. When I make a mistake during important competitions I become nervous.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

52. Before an important competition I am concerned that I may not do as well as I could.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

53. I can quickly refocus my concentration after becoming distracted during important competitions.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

54. When I mentally practise my performance, I try to imagine what it will feel like in my muscles.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

55. I am enthusiastic at practise sessions.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

56. I, myself, set my goals for my sport.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

57. I am concerned that others will be disappointed with my performance in important competitions.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

58. Before important competitions I am confident that I will perform well.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

59. When a competition is not going well, my concentration is easily distracted.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

60. I can clearly visualise my previous sport performances in my imagination.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

61. I enjoy training with others.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

62. I worry about the rest of the team to such an extent that it affects my performance.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

63. I have enough time to function efficiently in all areas of my life (sport, studies, work, social life, etc.).

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always

64. My family and friends support me in my sport.

0 Never 1 Rarely 2 Sometimes 3 Often 4 Always