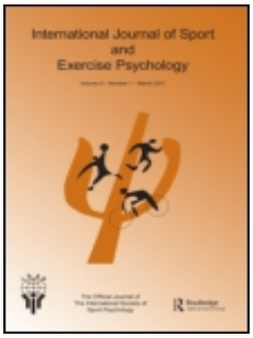

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Personality Hardiness Differentiates Elite-Level Sport Performers

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Abstract

Hardiness has three components: commitment to full involvement in life (commitment), belief in personal control over events (control), and enjoyment of challenge and opportunity (challenge). Evidence drawn across a variety of work environments suggests that these hardiness components facilitate optimal functioning. However, to date, only minimal empirical attention has been devoted to replicating such findings in the realm of competitive sport. This study examined the potential of the hardiness construct in differentiating elite-level sport performers. Volunteers (N = 1566; M = 21.7 years; SD = 4.2) were drawn from 16 sport classifications and were presently competing at international, national, county/provincial, or club/regional competitive levels. They completed the 18-item Personal Views Survey III-R in their respective training camps. Multivariate analysis of covariance revealed that international competitors scored significantly higher ($p < .001$) in commitment and total hardiness compared to counterparts in each of the other three competitive levels, and they scored higher in control in comparison to national and club performers when adjustments were made for age, type of sport, category of sport, and gender. This research identifies that a psychological profile that includes high levels of hardiness appears to distinguish elite-level competitors from subelite performers. Implications and future research suggestions are discussed.

Keywords: hardiness, positive psychology, sport performance, international standard, elite performers

Introduction

A significant amount of research has been undertaken in recent years to identify factors thought to underpin elite-level sport performance. This research suggests that there are physical (e.g., Carter, Ackland, Kerr, & Stapff, 2005), physiological (e.g., Hoff, 2005), perceptual-cognitive (e.g., Singer & Janelle, 1999), and sociological (e.g., Baker, Horton, Robertson-Wilson, & Wall, 2003) determinants of successful sport performance.

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Moreover, heeding calls that psychology be used to facilitate human functioning (Seligman & Csikszentmihalyi, 2000), recent research has investigated the relationship between selected positive psychological attributes and superior sport performance (Golby & Sheard, 2006; Sheard & Golby, 2006). Of particular interest, and increasingly included in discussions of positive psychology, is the hardy personality style (see Maddi, 2006a; Wallace & Bergeman, 2007).

Hardiness, with its roots in existential theory (e.g., Frankl, 1959; Gendlin, 1966; Kierkegaard, 1843/1959), is a stable personality disposition and has been conceptualised as an amalgam of cognition, emotion, and behavior (Maddi, 2006b). It combines the three attitudes "3Cs" of commitment, control, and challenge (Kobasa, 1979). In the hardy individual, commitment is the tendency to involve oneself in, rather than alienate, the activities of life. Committed persons have the type of cognitive appraisal that affords a generalized sense of purpose, allowing them to identify with and find meaning in the people, events, and things of their environment (Maddi, 2006a). Further, such individuals do not easily give up because of investments made to self and the environment (Judkins, Arris, & Keener, 2005). Control is the tendency to think, feel, and act as if one is influential, rather than passively helpless, when faced with the varied contingencies of life. Persons with control do not naively expect to determine all outcomes but rather perceive themselves as being able to make a difference in the world by choosing what they do and how they choose to respond to various events (Maddi, 2006b). Challenge typifies an expectation that life is unpredictable and that changes will stimulate personal development. Demanding situations are appraised as exciting and stimulating rather than threatening, enabling people to feel positively about life's fluctuations. People high in challenge believe that growth improves their lives through learning rather than by easy comfort and security (Maddi, 2006b). Hardiness can, therefore, be conceived as an individual's propensity to manage the demands of situations ranging from an absolute resilience to extreme vulnerability (Maddi, 2006b; Maddi & Khoshaba, 2005).

The positive influence of hardiness on performance has been reported in many diverse samples. For example, high hardiness scores have been associated with healthcare nurses reporting lower stress levels, higher problem-solving skills, and higher levels of job satisfaction (Judkins & Rind, 2005); college students being more likely to complete their academic courses (Lifton, Seay, & Bushke, 2000); more billable hours generated by human resource consultants (Maddi et al., 2006); and university undergraduates achieving superior final degree classifications (Sheard, 2009; Sheard & Golby, 2007).

Hardiness has also been identified as an important personality construct within sport-specific situations. To elaborate, research has shown that football players with high levels of hardiness demonstrate better peripheral vision (Rogers, Alderman, & Landers, 2003), report more facilitative interpretation of anxiety (Hanton, Evans, & Neil, 2003), cope more effectively with stressors (Goss, 1994; Kelley, 1994), and possess a greater ability to withstand burnout (Hendrix, Acevedo, & Hebert, 2000). Hardiness is also related to decreased injury time-loss in high-level sport performers (Ford, Eklund, & Gordon, 2000). Further, research has shown that hardiness, measured before competition, predicted six out of seven indices of male basketball performance excellence (Maddi

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& Hess, 1992) and female synchronized swimming selection to the U.S. Olympics team in 2000 (Lancer, 2000). Similarly, Golby, Sheard, and Lavallee (2003) reported significantly higher levels of hardiness in professional rugby league footballers who had learnt to play the game in Australia, while a subsequent study showed that professional rugby league players operating at the international level scored significantly higher in hardiness than their subelite counterparts (Golby & Sheard, 2004).

As sport performers attempt to achieve elite status, only those athletes with the appropriate psychological attributes make the transition upward because their adaptive personalities facilitate the adjustment (Deaner & Silva, 2002). The 3Cs of hardiness provide the courage and motivation to think, feel, and behave in ways conducive to athletes reaching and performing at high levels of competitive sport. For example, commitment facilitates industriousness and a willingness to expend extra time and effort to meet training and competition goals, control involves athletes taking responsibility for their own sporting and personal development, and challenge reflects an acceptance that situations in sport, and by extension life, are capricious. Thus, hardiness may be associated with higher levels of performance.

Despite the aforementioned studies that have considered hardiness in sport, little attention has been devoted to whether hardiness is associated with different competitive levels across a wide variety of sports. This is surprising, given the suggestion that possession of desirable personality characteristics, such as hardiness, may account for up to 90% of success in sport (Williams & Krane, 2001). Thus, there is a clear need to extend the findings of previous single-sport studies and to identify the extent of the relationship between hardiness and elite-level competition across multiple sports. Therefore, this study examined whether athletes representative of a variety of sports, and competing at different levels, differ in levels of hardiness. It was hypothesised that, relative to other competitive standards, competitors operating at the international level (the highest) would score significantly higher in hardiness.

Method

Participants

With institutional ethics approval, volunteers (N = 1566; M = 21.7 years; SD = 4.2; range = 17–42 years) were drawn from 16 sport classifications (see Table 1) and were presently competing either at international (n = 264; 17%), national (n = 462; 29%), county (equivalent to provincial honors; n = 418; 27%), or club (equivalent to regional honors; n = 422; 27%) competitive levels. These competitive standard categories reflect those employed in previous research (see Hanton, Thomas, & Maynard, 2004). All participants were naive to the research hypothesis and all gave their consent to participate. Adhering to paediatric ethical guidelines (Jago & Bailey, 2001), informed consent was obtained from parents or guardians for those volunteers under 18 years of age at the commencement of the study. Adhering to British Psychological Society guidelines (BPS, 2006), confidentiality regarding individual information was assured.

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Table 1. Summary of Participants' Demographic Characteristics

Contact team sports	***N***	♂	**I**	**N**	**C**	**c**	♀	**I**	**N**	**C**	**c**
Field hockey	**61**	15	2	2	7	4	46	3	8	21	14
Rugby league	**320**	320	119	101	96	4	-	-	-	-	-
Rugby union	**240**	212	57	100	41	14	28	2	1	3	22
Soccer	**371**	331	7	13	104	207	40	-	5	13	22
Total *n*	*992*	*878*	*185*	*216*	*248*	*229*	*114*	*5*	*14*	*37*	*58*
Contact individual sports											
Martial arts/amateur boxing	**19**	16	5	6	1	4	3	1	-	1	1
Total *n*	*19*	16	5	6	1	4	3	1	-	1	1
Non-contact team sports											
Basketball	**52**	29	2	3	6	18	23	1	-	7	15
Cricket	**24**	22	3	5	10	4	2	1	-	1	-
Netball	**71**	-	-	-	-	-	71	10	5	31	25
Volleyball	**10**	5	-	4	-	1	5	3	2	-	-
Total *n*	*157*	56	5	12	16	23	101	15	7	39	40
Non-contact individual sports											
Artistic roller-skating	**46**	11	7	4	-	-	35	19	16	-	-
Canoeing/rowing/kayaking	**63**	32	5	2	14	11	31	-	5	14	12
Equestrianism	**14**	-	-	-	-	-	14	4	3	3	4
Gymnastics/trampoline	**17**	1	1	-	-	-	16	2	8	1	5
Racquet sports	**28**	13	2	1	7	3	15	-	4	7	4
Swimming	**204**	79	2	59	10	8	125	4	96	12	13
Track and field	**26**	13	-	6	2	5	13	2	3	6	2
Total *n*	*398*	149	17	72	33	27	249	31	135	43	40
Grand total	***1566***	***1099***	***212***	***306***	***298***	***283***	***467***	***52***	***156***	***120***	***139***

Note: ♂ = Male; ♀ = Female; I = International; N = National; C = County; c = Club.

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Measures

The Personal Views Survey III-R. The Personal Views Survey III-R (PVS III-R; Maddi & Khoshaba, 2001) is an 18-item scale that yields a total hardiness score (a composite of the scores of the three subscales), as well as scores for the three six-item subscales: commitment, control, and challenge. Item examples include, "I often wake up eager to take up life wherever it left off" and "It's hard to imagine anyone getting excited about working" for commitment. "Trying your best at what you do usually pays off in the end" and "When I make plans, I'm certain I can make them work" for control. "Changes in routine

provoke me to learn" and "I am not equipped to handle the unexpected problems of life" for challenge. Scores were recorded on a 4-point Likert scale. Higher scores indicate desirable levels of hardiness. Total hardiness norms range from 19 to 49 with an average of 38 to 41 (Maddi & Khoshaba, 2001). In the present study, Cronbach alphas showed for each of the 3Cs an "adequate" approaching "very good" internal consistency ($\alpha \geq .70$; Kline, 2005, p. 59): commitment = .74, control = .78, and challenge = .75.

Procedure

Permission and consent from all relevant sport governing bodies, clubs, coaches, and players were obtained prior to the administration of the inventory. Either the first or second author administered the PVS III-R in person. Participants completed the PVS III-R in their respective training environments between October 2000 and June 2008. At the time of questionnaire completion, each performer was operating at the highest competitive standard he or she had achieved to date. Instructions were given verbally and participants' confidentiality was guaranteed. No time limit was imposed for the completion of the inventory, but average completion time was approximately 5 min.

Data Analysis

To reduce the variance attributable to potentially confounding variables, a multivariate analysis of covariance (MANCOVA) was used to analyse the data (Tabachnick & Fidell, 2007). In the MANCOVA model, the hardiness 3Cs served as the dependent variables; competitive standard served as the independent variable; and age, sport type (i.e., individual or team), sport category (i.e., contact or non-contact), and gender (i.e., male or female) served as the covariates. Because total hardiness is a composite of the scores of the 3Cs, a separate univariate analysis of covariance (ANCOVA) was employed to identify significant composite differences. The independent variable and covariates were the same as those in the aforementioned MANCOVA model. Alpha was set at .05. The partial eta-squared (η^2) statistic estimated the effect size associated with each statistical difference (Tabachnick & Fidell, 2007). According to Cohen (1992), guidelines for interpreting effect sizes values are such that .02 indicates a small effect, .13 indicates a moderate effect, and .26 indicates a large effect.

To establish specifically where differences existed, post hoc comparisons were made using the Dunn-Sidak method (Kirk, 1995). To be conservative in multiple testing, and to avoid inflating the Type I error rate in these analyses, alpha was set at .008 (Keppel & Wickens, 2004). All statistical analyses were conducted using SPSS for Windows v.14.0 (SPSS Inc., Chicago, IL).

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Results

Means and standard deviations of all variables are presented in Table 2. MANCOVA revealed a significant multivariate effect for competitive standard, Wilks's $\Lambda = .91$, $F(9, 3787) = 16.34$, $p < .001$, partial $\eta^2 = .03$. There was a significant effect for commitment, $F(3, 1558) = 29.56$, $p < .001$, partial $\eta^2 = .05$. Specifically, international competitors scored significantly higher than national and club performers, while national and county performers scored significantly higher than their club counterparts. There was also a significant effect for control, $F(3, 1558) = 23.27$, $p < .001$, partial $\eta^2 = .04$. International athletes scored significantly higher than all other groups, while national competitors scored significantly higher than club performers. No significant differences were observed for challenge, $F(3, 1558) = 4.04$, $p = .007$, partial $\eta^2 = .01$.

An ANCOVA on total hardiness revealed a significant effect for competitive standard, $F(3, 1558) = 28.38$, $p < .001$, partial $\eta^2 = .05$. Specifically, international competitors scored significantly higher than each of their counterparts, while national and county competitors scored significantly higher than club performers. The partial η^2 values for each of the hardiness 3Cs and total hardiness indicated a small effect size (Cohen, 1992).

Discussion

The aim of this study was to investigate whether levels of personality hardiness would vary among sport performers operating at different competitive standards. Findings generally supported the present study's hypothesis that international competitors would score significantly higher than their counterparts operating at subordinate levels. Results suggested differences relative to the degree to which commitment, control, and composite total hardiness were present. International sport performers were characterized by the highest levels of hardiness when adjustments were made for age, type of sport, category of sport, and gender.

Consistent with previous single sport studies (see Golby & Sheard, 2004), the findings of the present research show that international athletes drawn from a variety of sports possess significantly higher scores in hardiness. The stressful nature of elite-level sports, and the competitive environment surrounding them, place many demands on

Table 2. Means, Standard Deviations, and Range of Scores of the PVS III-R

	Competitive standard							
	International		National		County		Club	
PVS III-R	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Commitment	15.60	3.01	14.73	3.37	14.88	2.86	13.36	3.19
Control	11.28	2.83	9.64	2.84	9.40	2.28	9.23	2.27
Challenge	12.22	2.64	11.80	2.44	11.88	2.32	11.39	2.73
Total hardiness	39.09	5.86	36.17	6.15	36.16	5.60	33.99	5.64

the athletes performing in that arena (Jones, 1995). Indeed, evidence derived from competitors functioning at that level suggests that it is as demanding and stressful as it is rewarding (see Noblet & Gifford, 2002). Hardiness theory posits that individuals high in its three attitudes show an action pattern of managing demanding and unpredictable circumstances (e.g., highly competitive sport) by facing them and striving to develop them into growth opportunities. This is of particular interest when considering the situations that performers encounter, particularly at the highest competitive level, including worries about poor performances, injury, constant pressure to perform to a high standard, possibility of being delisted or not selected, coach stress, frequent and long training sessions, interpersonal conflict, and persistent media and public scrutiny (see Hanton, Fletcher, & Coughlan, 2005; Holt & Hogg, 2002; Nicholls, Holt, & Polman, 2005; Noblet & Gifford, 2002; Thelwell, Weston, & Greenlees, 2007). Exposure to and effective coping with such demands may help to explain the greater levels of hardiness in international-level athletes.

In addition to mental toughness, focus, optimism, and self-belief (see Golby & Sheard, 2004; Gould, Dieffenbach, & Moffett, 2002; Jones, Hanton, & Connaughton, 2002; Mallett & Hanrahan, 2004; Norlander & Archer, 2002), the findings of the present study show that hardiness is a psychological characteristic that distinguishes elite-level sport performers from their subelite counterparts. Regardless of the sport, this personality style would appear to belong to a certain psychological profile linked with performance at higher levels of competitive sport (see Williams & Krane, 2001). Clearly, hardiness shares similar conceptual space with Williams and Krane's general profile that included commitment and a positive preoccupation with sport, a feeling of control, and coping skills for dealing with distractions and unexpected events. Despite this, it is important to recognize that commitment, control, challenge, and total hardiness explain only 5%, 4%, 1%, and 5%, respectively, of the variance in competitive standard. Therefore, relative differences in levels of hardiness among sport performers in this sample explained less variance in competitive standard than in a similarly designed single-sport study (see Golby & Sheard, 2004). Thus, the present study's findings suggest that the influence of the 3Cs of hardiness and that of total hardiness on competitive sport performance appears to be modest.

Using hardiness as a predictor variable in conjunction with, for example, optimism and mental toughness would offer evidence of the hardy attitudes' predictive validity with established predictors of sporting success. In addition, given that previous research has emphasized the importance of coping as a key factor relating to similarly positive psychological constructs such as optimism and mental toughness (see Connaughton, Wadey, Hanton, & Jones, 2008; Ford et al., 2000; Gould et al., 2002; Jones, Hanton, & Connaughton, 2007; Nicholls, Polman, Levy, & Backhouse, 2008), future studies may wish to incorporate measurement of hardiness in conjunction with athletes' use of coping strategies. Such research should also be extended to coaches, among whom particular coping strategies have been identified (Frey, 2007). This may shed further light on the relationship between hardiness and stress management and the mechanisms by which hardiness exerts its ameliorative influence. Moreover, consideration should be given to the inclusion of hardiness as an outcome variable in psychological skills training

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programs and to the possibility of heredity. This is particularly relevant as recent research has found positive psychological constructs responsive to intervention (Sheard & Golby, 2006) and shown evidence of an association with genotype (Golby & Sheard, 2006). This research demonstrates that, in addition to the many attributes requisite to outstanding sport performance, a psychological profile that includes high levels of hardiness appeared to differentiate elite-level competitors.

References

Baker, J., Horton, S., Robertson-Wilson, J., & Wall, M. (2003). Nurturing sport expertise: Factors influencing the development of the elite athlete. *Journal of Sports Science and Medicine, 2,* 1-9.

British Psychological Society (2006, March). *Code of ethics and conduct.* Leicester, England: Author.

Carter, J. E. L., Ackland, T. R., Kerr, D. A., & Stapff, A. B. (2005). Somatotype and size of elite basketball players. *Journal of Sports Sciences, 23,* 1057-1063.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Connaughton, D., Wadey, R., Hanton, S., & Jones, G. (2008). The development and maintenance of mental toughness. *Journal of Sports Sciences, 26,* 83-95.

Deaner, H., & Silva, J. M. (2002). Personality and sport performance. In J. M. Silva & D. E. Stevens (Eds.), *Psychological foundations of sport* (pp. 48-65). Boston, MA: Allyn & Bacon.

Frankl, V. E. (1959). *Man's search for meaning: An introduction to logotherapy.* Boston, MA: Beacon Press.

Ford, I. W., Eklund, R. C., & Gordon, S. (2000). An examination of psychosocial variables moderating the relationship between life stress and injury time-loss among athletes of a high standard. *Journal of Sports Sciences, 18,* 301-312.

Frey, M. (2007). College coaches' experiences with stress–"problem solvers" have problems too. *Sport Psychologist, 21,* 38-57.

Gendlin, E. T. (1966). Existentialism and experiential psychotherapy. In C. Moustakas (Ed.), *The child's discovery of himself* (pp. 196-236). New York: Basic Books.

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

Golby, J., & Sheard, M. (2006). The relationship between genotype and positive psychological attributes in national-level swimmers. *European Psychologist, 11,* 143-148.

Golby, J., Sheard, M., & Lavallee, D. (2003). A cognitive-behavioural analysis of mental toughness in national rugby league football teams. *Perceptual and Motor Skills, 96,* 455-462.

Goss, J. (1994). Hardiness and mood disturbances in swimmers while overtraining. *Journal of Sport and Exercise Psychology, 16,* 135-149.

Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology, 14,* 172-204.

Hanton, S., Evans, L., & Neil, R. (2003). Hardiness and the competitive trait anxiety response. *Anxiety, Stress, and Coping, 16,* 167-184.

Hanton, S., Fletcher, D., & Coughlan, G. (2005). Stress in elite sport performers: A comparative study of competitive and organizational stressors. *Journal of Sports Sciences, 23,* 1129-1141.

Hanton, S., Thomas, O., & Maynard, I. (2004). Competitive anxiety responses in the week leading up to competition: The role of intensity, direction and frequency dimensions. *Psychology of Sport and Exercise, 5,* 169-181.

Hendrix, A. E., Acevedo, E. O., & Hebert, E. (2000). An examination of stress and burnout in certified athletic trainers at Division I-A universities. *Journal of Athletic Training, 35,* 139-144.

Hoff, J. (2005). Training and testing physical capacities for elite soccer players. *Journal of Sports Sciences, 23,* 573-582.

Holt, N. L., & Hogg, J. M. (2002). Perceptions of stress and coping during preparations for the 1999 women's soccer World Cup Finals. *Sport Psychologist, 16,* 251-271.

Downloaded by [Gothenburg University Library] at 22:03 08 October 2017

Jago, R., & Bailey, R. (2001). Ethics and paediatric exercise science: Issues and making a submission to a local ethics and research committee. *Journal of Sports Sciences, 19,* 527-535.
Jones, G. (1995). More than just a game: Research developments and issues in competitive anxiety in sport. *British Journal of Psychology, 86,* 449-478.
Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology, 14,* 205-218.
Jones, G., Hanton, S., & Connaughton, D. (2007). A framework of mental toughness in the world's best performers. *Sport Psychologist, 21,* 243-264.
Judkins, S., & Rind, R. (2005). Hardiness, job satisfaction, and stress among home health nurses. *Home Health Care Management & Practice, 17,* 113-118.
Judkins, S., Arris, L., & Keener, E. (2005). Program evaluation in graduate nursing education: Hardiness as a predictor of success among nursing administration students. *Journal of Professional Nursing, 21,* 314-321.
Kelley, B. C. (1994). A model of stress and burnout in collegiate coaches: Effects of gender and time of season. *Research Quarterly for Exercise and Sport, 65,* 48-58.
Keppel, G., & Wickens, T. D. (2004). *Design and analysis: A researcher's handbook* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
Kierkegaard, S. (1959). *Either/or: A Fragment of Life* (D. F. Swenson & L. M. Swenson, Trans.). Garden City, NY: Doubleday. (Original work published 1843)
Kline, R. B. (2005). *Principles and practice of structural modelling* (2nd ed.). New York: Guilford.
Kirk, R. C. (1995). *Experimental design* (3rd ed.). Pacific Grove, CA: Brooks/Cole.
Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37,* 1-11.
Lancer, K. (2000). *Hardiness and Olympic women's synchronized swim team.* Paper presented at the Conference on Improving Performance in Sport, University of Nevada, Las Vegas.
Lifton, D., Seay, S., & Bushke, A. (2000, Summer). Can student hardiness serve as an indicator of likely persistence to graduation? Baseline results from a longitudinal study. *Academic Exchange Quarterly,* 73-81.
Maddi, S. R. (2006a). Building an integrated positive psychology. *Journal of Positive Psychology, 1,* 226-229.
Maddi, S. R. (2006b). Hardiness: The courage to grow from stresses. *Journal of Positive Psychology, 1,* 160-168.
Maddi, S. R., Harvey, R. H., Khoshaba, D. M., Lu, J. L., Persico, M., & Brow, M. (2006). The personality construct of hardiness: III. Relationships with repression, innovativeness, authoritarianism, and performance. *Journal of Personality, 74,* 575-598.
Maddi, S. R., & Hess, M. J. (1992). Personality hardiness and success in basketball. *International Journal of Sport Psychology, 23,* 360-368.
Maddi, S. R., & Khoshaba, D. M. (2001). *Personal Views Survey* (3rd ed., rev.). Newport Beach, CA: Hardiness Institute.
Maddi, S. R., & Khoshaba, D. M. (2005). *Resilience at work: How to succeed no matter what life throws at you.* New York: Amacom.
Mallett, C. J., & Hanrahan, S. J. (2004). Elite athletes: Why does the 'fire' burn so brightly? *Psychology of Sport and Exercise, 5,* 183-200.
Nicholls, A. R., Holt, N. L., & Polman, R. C. J. (2005). A phenomenological analysis of coping effectiveness in golf. *Sport Psychologist, 19,* 111-130.
Nicholls, A. R., Polman, R. C. J., Levy, A. R., & Backhouse, S. H. (2008). Mental toughness, optimism, pessimism, and coping among athletes. *Personality and Individual Differences, 44,* 1182-1192.
Noblet, A., J., & Gifford, S. M. (2002). The sources of stress experienced by professional Australian footballers. *Journal of Applied Sport Psychology, 14,* 1-13.
Norlander, T., & Archer, T. (2002). Predicting performance in ski and swim championships: Effec-

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tiveness of mood, perceived exertion, and dispositional optimism. *Perceptual and Motor Skills, 94,* 153-164.

Rogers, T. J., Alderman, B. L., & Landers, D. M. (2003). Effects of life-event stress and hardiness on peripheral vision in a real-life stress situation. *Behavioral Medicine, 29,* 21-26.

Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5-14.

Sheard, M. (2009). Hardiness commitment, gender, and age differentiate university academic performance. *British Journal of Educational Psychology, 79,* 189-204.

Sheard, M., & Golby, J. (2006). Effect of a psychological skills training programme on swimming performance and positive psychological development. *International Journal of Sport and Exercise Psychology, 4,* 149-169.

Sheard, M., & Golby, J. (2007). Hardiness and undergraduate study: The moderating role of commitment. Per*sonality and Individual Differences, 43,* 579-588.

Singer, R. N., & Janelle, C. M. (1999). Determining sport expertise: From genes to supremes. *International Journal of Sport Psychology, 30,* 117-150.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.

Thelwell, R. C., Weston, N. J. V., & Greenlees, I. A. (2007). Batting on a sticky wicket: Identifying sources of stress and associated coping strategies for professional cricket batsmen. *Psychology of Sport and Exercise, 8,* 219-232.

Wallace, K. A., & Bergeman, C. S. (2007). Hardiness as a dispositional resource: Methods of conceptualizing the construct. In A. D. Ong & M. H. M. van Dulmen (Eds.), *Oxford handbook of methods in positive psychology* (pp. 323-336). New York: Oxford University Press.

Wang, J., & Ramsey, J. (1998). The relationships of school type, coaching experience, gender and age to new coaches' challenges and barriers at the collegiate level. *Research in Coaching and Athletics Annual, 13,* 1-22.

Williams, J. M., & Krane, V. (2001). Psychological characteristics of peak performance. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (4th ed., pp. 162-178). Mountain View, CA: Mayfield.

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