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IMPACT OF INTERVAL TRAINING ON SELECTED PHYSICAL FITNESS AND PHYSIOLOGICAL VARIABLES OF ANDHARA UNIVESITY VOLLEYBALL PLAYERS

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ABSTRACT:

Few studies have reported on the amount of Interval Training improve in speed, agility and balance, and no studies of this nature have focused on Volleyball players. The purpose of this study was to examine the impact of interval training on selected physical fitness variables of speed, agility, and muscular strength and physiological variables Resting Pulse Rate , VO2 max , Mean Arterial Blood Pressure , Vital Capacity of Volleyball players. The Fifty (50) Andhra University Volleyball players were selected from Visakhapatnam only. Fifty (50) Andhra University Volleyball players were participated in a 12-weeks training program. The subject age ranged from 17 to 25 years. The thirty subjects were randomly assigned into two equal groups, Group I was considered as interval training Experimental Group (ITG-n=25), Group II was considered as control group (CG-n=25). The control group was instructed to maintain their regular daily activities and to avoid any additional strenuous physical activity during the study. The training duration per session for the experimental groups was 40-60 minutes, 3 days in a week till 12 weeks. Physical fitness variables completed of the both groups at zero time and after 12 weeks of interval training intervention group in control group. In the present study Speed, Agility, Flexibility, Muscular strength and physiological variables Resting Pulse Rate , VO2 max , Mean Arterial Blood Pressure , Vital Capacity were changed significantly. Speed, Agility and Muscular strength endurance after regular practices interval training is beneficial for University Volleyball players. It was concluded that a interval training improved physical fitness and Physiological Variables for Volleyball players. Therefore interval training covered in this study are beneficial for the University Volleyball players

Keywords: Volleyball Players, Physical Fitness, Interval Training, Physiological Variables.

INTRODUCTION:

Physical fitness is a capacity for sustained physical activity. It is to achieve success in every walk of life. The progress of one country depends mainly on the degree of physical fitness of the people. According to Willgoose(1961) “Physical Fitness provides capacity for doing all types of activities”. Currently there is wide interest to identify the most effective methods of training for strength and endurance development and this is of special significance for physical education programmes in schools and colleges.

Training is a series of physical activities executed for the purpose of increasing efficiently in running and it should be continued throughout an athlete’s life time. The specific physical fitness that permits a faster time is acquired most efficiently through scientifically tailored schedule to the length and anticipated speed of the racing distance.(Falls, 1968) Sports training is a specialized process of the physical perfection of the content of which is the planned preparation for top class performance in the event or discipline chosen on the basis of evaluation and training. For improving the standard of play in the field of sports, conditioning exercises play a prominent role. Conditioning is essential for any form of sports or games.

The word training has been a part of human language since ancient times. It denotes the process of preparation for some task. This process invariably extends to a number of days and even months and year. The term “training” is widely used in sports. There is however some disagreements among sports coaches and also sports scientists regarding the exact meaning of the word. Some experts, especially belonging for sports medicine understood sports training as basically doing physical exercise, several terms used in training for example, strength training, interval training, bench step training, technical training and statistical training reflect the line of thinking.

Training involves periodic assessment of the athlete’s status and progress. Training usually varies regular increase in the difficulty of task performance. Training suggest some form of gradual increase in performance output over an extended period of time. Most kind of training needs regular repeated and collective repetition of some of the original movement. Any invariable training implies hard work. Training should result in a level of personal fitness and should be associated with good health. Training is the programme of exercise designed to improve the skills and increase the energy capacities of an athlete for a particular event.

The extensive interval training constitutes the intermittent variation of exertion and active recovery periods within a training unit. Characteristics of the extensive interval method are medium or large exertion periods within the basic endurance range or within the strength endurance range with the duration of the recovery periods being half as long as those of the exertion periods. It is important to note that the recovery periods must not result in

full recovery. The range of sinusoidal load schemes during which the intensity is gradually increased until a maximum is reached and subsequently gradually decreased.

High-intensity interval training (HIIT), also called High-Intensity Intermittent Exercise (HIIE) or sprint interval training (SIT), is an enhanced form of interval training, an exercise strategy alternating periods of short intense anaerobic exercise with less-intense recovery periods. HIIT is a form of cardiovascular exercise. Usual HIIT sessions may vary from 4–30 minutes. These short, intense workouts provide improved athletic capacity and condition, improved glucose metabolism, and improved fat burning.(Christopher G.R et.al. 2009).

Fitness is a term which is often used as synonyms to health in a limited manner. Fitness denotes, different facts of health. The term fitness is the capacity of the individual to live and function effectively, purposefully, here and now to meet confidently the problems and crises which are among his expectations. The physical fitness plays a vital role in the performance. An individual physical fitness and performances depend in the co-ordinative functions of the various factors such as physical, physiological abilities, nutrition, technique, tactics, physique, body size and composition.

Physical fitness is the human body what fine tuning is to an engine. It enables us to perform up to our potential. Fitness can be described as a condition that helps us for better look, pleasant feel and do our best. More specifically, it is "the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well being" Physical fitness involves the performance of the heart and lungs, and the muscles of the body. And since what we do with our bodies also effects what we can do with our minds, fitness influences to some degree qualities such as mental alertness and emotional stability.

For the physiological system of the body to be fit they must function well enough to support the specific activity individual is performing. Moreover different activities make different demands upon the organism with respect to circulatory, respiratory, metabolic and neurological process which are specific to the activity.

The lungs, heart and blood perform a vital function on the body's supply system. They supply to the muscle with necessary fuels, oxygen and carry wastes such as carbon dioxide and lactic acid. Consequently the cardio respiratory system in the athletes needs to be developed.

STATEMENT OF THE PROBLEM:

To purpose of the study "Impact Of Interval Training On Selected Physical Fitness And Physiological Variables Of University Volleyball".

OBJECT OF THE STUDY:

This study was to assess the present status of college level men Volleyball Players physical fitness variables, such as, flexibility, leg strength, back strength and muscular endurance and to find out how far extensive interval training and intensive interval training could be modified through these two experimental treatments.

This study was to physiological variables, such as, resting pulse rate, VO2 max, vital capacity and mean arterial blood pressure and to find out how far extensive interval training and intensive interval training could influence these physiological among the men Volleyball players.

This study would further high light which of the two experimental treatments, namely, extensive interval training or intensive interval training was more beneficial to alter selected physical and physiological variables of college men Volleyball players.

METHODOLAGY:

The purpose of the study was to find out the effect of extensive and intensive interval training on selected physical and physiological variables among college men volleyball payers. The subjects taken for the present study were 50 men volleyball players from different colleges in Andhra university affiliated colleges . The subjects were in the age group of 17 to 25 years with mean age. The subjects were selected on a random basis and were allotted to Two groups (experimental group and control group) by random assignment. The experimental subjects given 45 Days training daily morning by 6:00am to 8:00am and Evening Section 4:00 pm to 6:00 pm . The investigator reviewed books, journals, research articles on extensive and intensive interval training and its effects on physical fitness and physiological variables for the purpose of this research.

Physical Fitness Variables

1. Speed
2. Strength
3. Flexibility
4. Muscular Endurance

Physiological Variables

1. Resting Pulse Rate
2. Vital Capacity
3. VO2 max
4. Mean Arterial Blood Pressure

The intraclass correlation value of the above test and retest also indicated subject reliability as the same subjects were used under similar conditions by the same tester. The co-efficient of reliability were significant at 0.01 level, for the above test under investigation.

STATISTICAL ANALYSIS:

The data were analyzed using statistical package for social sciences (SPSS) for windows version 16.1. Paired t-test was carried out between suspension training and control groups. To find out significance difference between the means of pre and post test of the groups and are presented in table I & II.

Table-I Table show in comparison of difference in pretreatment and post treatment Scores among Physical Fitness Tests for Experimental Group.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physical Fitness Variables							
Speed	Pretest	7.05	0.96	0.96	14	10.22*	2.145*
	Posttest	6.09					
Agility	Pretest	17.16	2.93	0.96	14	15.10*	
	Posttest	14.23					
Flexibility	Pretest	15.06	3.17	0.83	14	16.02*	
	Posttest	18.23					
Strength	Pretest	31.2	10.66	0.77	14	11.17*	
	Posttest	41.86					

*Significant at 0.05 level for the degrees of freedom.

Table I suggests the obtained 't' values of the Physical fitness on criterion measure of 10.22 (speed), 15.10 (agility), 16.02 (Flexibility) 11.17 (muscular strength endurance). The obtained 't' values to be significant at 0.05 level for degree of freedom 1,14 the required critical value was once 2.145. Hence the obtained 't' values on the selected criterion variables greater than the required critical value, it was concluded that the interval training programme produced enormous improvement mean difference.

Figure 1: Bar diagram showing the pre, post means values of Interval training group (ITG) on Speed, Agility , Flexibility & strength .

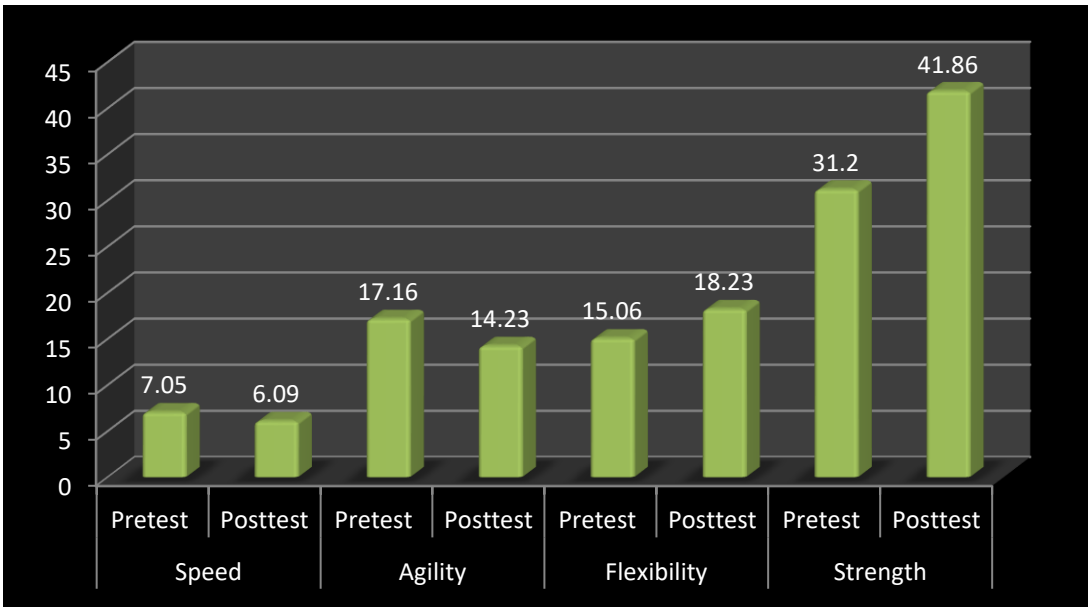


Table-II Table Showing Comparison of Difference In Pre Treatment And Post Treatment Scores Among Control Group.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physical Fitness Variables							
Speed	Pretest	7.05	0.02	0.09	14	2.01	2.145*
	Posttest	7.03					
Agility	Pretest	17.16	0.01	0.08	14	1.10*	
	Posttest	17.15					
Flexibility	Pretest	15.06	0.17	0.06	14	1.02*	
	Posttest	15.23					
Strength	Pretest	31.2	1.66	0.07	14	1.17*	
	Posttest	32.86					

*Significant at 0.05 level for the degrees of freedom.

Figure 2: Bar diagram showing the pre, post means values of Control group (CG) on Speed, Agility, Flexibility & strength.

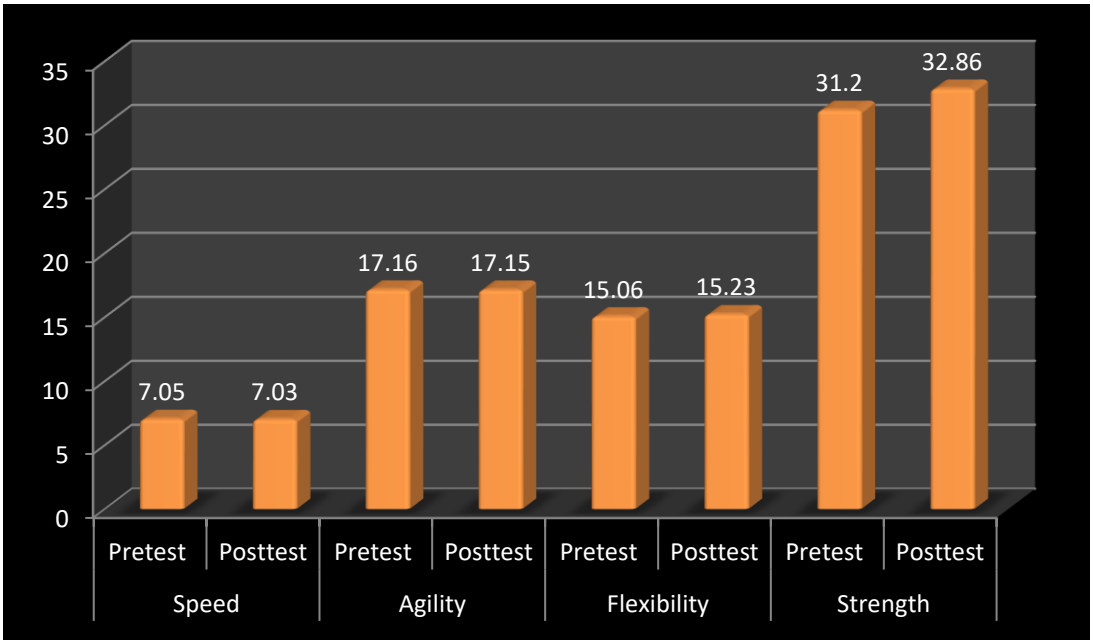


Table-III: Table show in comparison of difference in pretreatment and post treatment Scores among Physiological Test for Experimental Group.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physiological Variables							
Resting Pulse Rate	Pretest	72.05	5.49	0.42	14	2.52*	2.145*
	Posttest	66.56					
Vital Capacity	Pretest	15.16	1.85	0.58	14	1.96*	
	Posttest	17.01					
VO2 max	Pretest	15.06	3.17	0.46	14	1.83*	
	Posttest	18.23					
Mean Arterial Blood Pressure	Pretest	72.36	5.76	1.07	14	2.17*	

	Posttest	66.86					

*Significant at 0.05 level for the degrees of freedom

Figure 3: Bar diagram showing the pre, post means values of Interval training group (ITG) on Physiological Variables in Experimental Group.

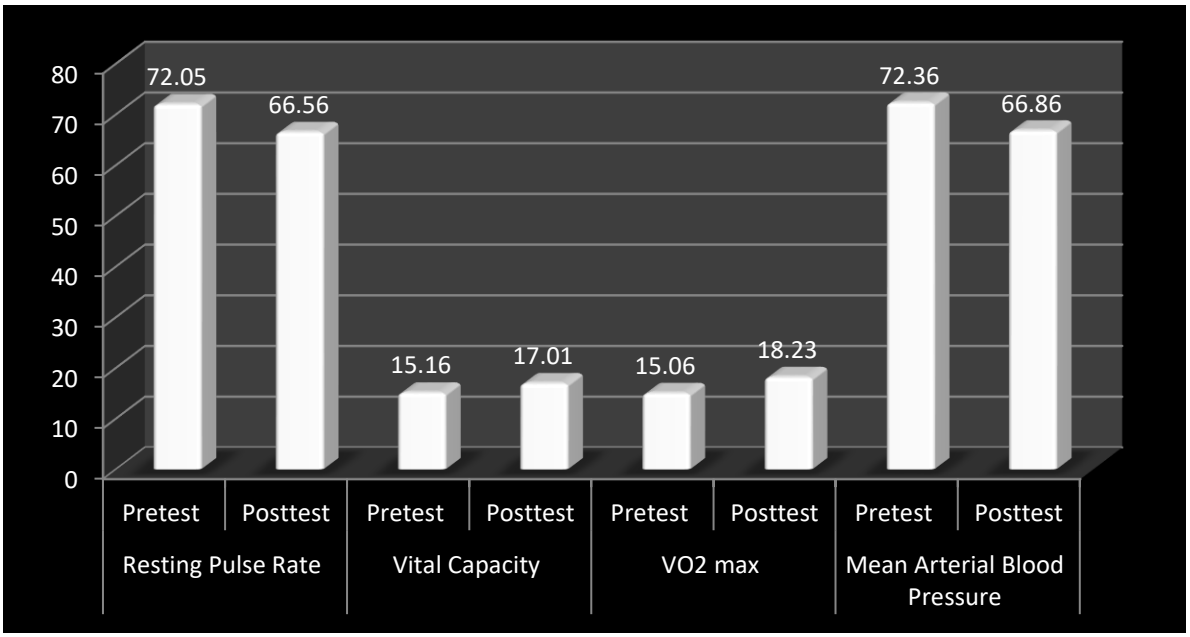
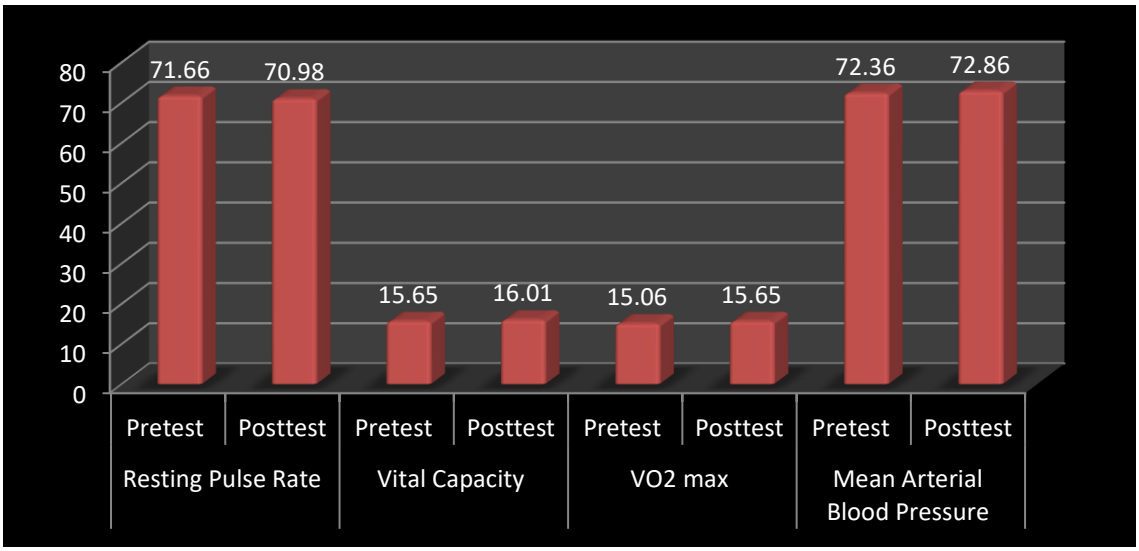


Table-III: Table show in comparison of difference in pretreatment and post treatment Scores among Physiological Test for Control Group.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physiological Variables							
Resting Pulse Rate	Pretest	71.66	0.68	0.02	14	1.52*	2.145*
	Posttest	70.98					
Vital Capacity	Pretest	15.65	0.36	0.08	14	0.06*	
	Posttest	16.01					
VO2 max	Pretest	15.06	0.61	0.06	14	1.01*	
	Posttest	15.65					
Mean Arterial Blood Pressure	Pretest	72.36	0.5	0.05	14	1.99*	
	Posttest	72.86					

Figure 3: Bar diagram showing the pre, post means values of Interval training group (ITG) on Physiological Variables in Control Group.



DISCUSSION:

A sour result study experimented the effect of interval training on physical fitness parameters among Volleyball players. The results of this study indicated that interval training is more efficient to bring out desirable changes over the speed, agility flexibility and muscular strength and physiological variables Resting Pulse Rate , VO2 max , Mean Arterial Blood Pressure , Vital Capacity of Volleyball players. The finding of the present study had similarity with the findings of the investigators referred in this study. Mathisen et al., (2014) the training sessions with short interval at maximum effort, interspersed with adequate recovery time, results in improvements in both ininterval (acceleration) and in agility performance in adolescent athletes. Bonnette et al., (2011) indicate that a two-day a week sprint, plyometric and agility training program over four weeks can have positive results on the speed, endurance and power of soccer players. Athletics coaches and trainers should consider implementing an agility, plyometric and interval training program for the development of speed, agility and muscular strength endurance in their athletes, even if they have admitted amount of time for training outside of Volleyball players.

CONCLUSION :

Interval training has significant effect on physical fitness parameters such as speed. Agility, Flexibility ,strength and Physiological Variables . It means that interval training increase speed agility flexibility also increase strength and physiological variables Resting Pulse Rate , VO2 max , Mean Arterial Blood Pressure , Vital Capacity therefore increase the interval training to given the Volleyball players.

REFERENCES:

1. Colakoglu, F. F., et al. "Does the Weighted Rope Jump Training Affect the Motor Skills in Adolescent Female Volleyball Players." *Arch Sports Med Physiother* 2.1 (2017): 005-009.
2. Beryger Richard A. Applied Exercise Physiology, (Philadelphia: Lea and Febiger), 1982, 174-175.
3. Chatterjee Arpita. “Improved health status through prolonged practice of dance as a therapy – a case study.” International Journal of Basic and Applied Medical Sciences. 2013b; 3:1180-183.
4. Kasudari Ganapathi & Dilipkumar Dibba (2022) . “Effect Of Training Methods On Physical Fitness And Physiological Variables Of Athletes Among APTWR Sports School Students In Visakhapatnam District” © 2022 IJCRT | Volume 10, Issue 5 May 2022 | ISSN: 2320-2882.
5. Alberto Carvalho, Paulo Mourão,&Eduardo Abade(2014)., Effects of Strength Training Combined with Specific Plyometric exercises on body composition, vertical jump height and lower limb strength development in elite male handball players:, Journal of Human Kinetics volume 41/2014, 125-132.
6. Verma, J .P., A (2000)*Text Book on Sports Statistics*, Venus Publication ,Gwalior, India.
7. Boone H. (1967), 9:86 “ A Comparison of physical fitness level of urban and rural boys” completed research in health physical education and recreation.
8. Carter, AB, Kaminski ,TW et al (2007) ‘Effects of High Volume Upper Extremity Plyometric Training on Throwing Velocity and Functional Strength Ratios of the Shoulder Rotators in Collegiate Baseball Players’. Journal of Strength and Conditioning Research, 21(1), 208-1.
9. Price, R.G. (2006). The Ultimate Guide to Weight Training for Basketball - 4th edition. Cleveland, OH: Price World Enterprises.
10. Singh Sunil (2010). Comparative Between Selected Physical Fitness Variables of Offensive and Defensive Football Players of University Level, Abstract Book, National Seminar on Recent Trends & Future of Physical Education and Sports Science, Mahatma Gandhi Vidyapith, Varanasi (UP), India, Vol. 1, (p. 37).
11. Rudd, A. &Mondello, M. J. (2006). How do college coaches define character? A qualitative study with Division IA head coaches .*Journal of College & Character: VII(3).*
12. Gucciardi, D. F., Jackson, B., Hodge, K., Anthony, D. R., & Brooke, L. E. (2015). Implicit Theories of Mental Toughness: Relations with Cognitive, Motivational, and Behavioral Correlates. *Sport, Exercise and Performance Psychology, 4,* 100-112 http://dx.doi.org/10.1037/spy0000024.
13. 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. http://dx.doi.org/10.1080/10413200290103509
14. Krane, V., & Williams, J. M. (2006). Psychological Characteristics of Peak Performance. In J. M. Williams (Ed.), *Applied Sport Psychology: Personal Growth to Peak Performance* (pp. 207-227). New York: McGraw-Hill.
15. Lambert, L., Passmore, H., & Holder, M. D. (2015). Foundational Framework of Positive Psychology: Mapping Well-Being Orientations. *Canadian Psychology, 56,* 311-321. http://dx.doi.org/10.1037/cap0000033
16. Lane, A. (2014). An Examination of Robust Self-Confidence in Elite Sport. *Sport & Exercise Psychology Review, 10,* 24-27.
17. Loehr, J. E. (1986). *Mental Toughness Training for Sports: Achieving Athletic Excellence.* Lexington, MA: Stephen Green Press.