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Body composition and emotional intelligence among high achievers and low achievers hurdlers: A comparative study

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Abstract

The present study was conducted to compare the body composition and emotional intelligence between high achievers (n=8) and low achievers (n=15) 100 m hurdlers of All India inter-university. The body composition characteristics were measured using a body composition monitor with a scale called the HBF-361. The emotional intelligence scale created by Hyde, Pethe, and Dhar was used to evaluate emotional intelligence. An Independent 't-test' was applied to determine the significance of the difference between the means score. The results revealed that high achievers female hurdlers have shown significantly higher skeletal muscle mass and emotional intelligence and lesser body fat percentage and visceral fat in comparison to low achievers 100 m hurdlers. However, an insignificant difference was also observed between high-achiever hurdlers and low-achiever hurdlers in the variables of body mass index and basal metabolic rate.

Keywords: Body composition, emotional intelligence, high achievers, low achievers and hurdlers

Introduction

The makeup of an athlete's physique is a nearly crucial aspect of the outcome of any sporting competition (Wilmore, 1982) [13]. The ideal body composition is crucial for peak athletic performance (Mathur and Salokun, 1985) [7]. Fluids, proteins, minerals, and lipids make up the body. In a two-component body composition model, fat and lean tissue are treated as separate entities. The amount of fat in a person's body varies more than anything else. Professionals and the general public both need to understand that some fat, or adipose tissue, is necessary for optimal bodily function. A layer of fat around the body might shield vital organs from harm. It is not the purpose of exercise programs to assist people get rid of fat, but to help them get to a healthy weight for their height. Men typically have a body fat proportion of 18 percent and women of 23 percent. When it comes to physical fitness, a body fat percentage of 12 or less is ideal for males and 18 or less is ideal for women. There should be no less than 3% fat on men's bodies and no more than 12% fat on women's bodies (For women's reproductive health, it's important to adhere to the recommended height percentage.) Having a very low body fat percentage is unhealthy (Michael, 2008) [8].

Emotional Intelligence (EI) examines the psychological foundations of success and achievement. Though, Thorndike and Wechsler did initial research on the topic in the late 1930s and early 1940s, it was Gardner's (1983) [3] study of the "many intelligences" that brought the concept to the forefront. Over the last several years, psychologists have refined their definitions of individual and social intelligence to better capture their nuanced nature (Bar-On, 1997 & Goleman, 1998) [2, 4]. Extensive research in the field of psychology has shown a connection between high EI and successful coping (Austin *et al.*, 2004; Petrides *et al.*, 2007; Kirk *et al.*, 2008) [1, 9, 6]. One definition of emotional intelligence is "the ability to distinguish between distinct emotions and their causes and the skilled application of this information to one's own decision-making and the decision-making of others" (Salovey and Mayer, 1990) [10]. Emotional acuity is associated with success in many spheres of life, including school and athletics (Van & Viswesvaran, 2004) [12]. Zizzi *et al.*, (2003) [14] discovered this to be the case. Stress reduction is only one of the many health benefits connected with them.

Hurdle running is the most difficult track and field event. The performance in hurdle event depends on the motor abilities, coordination abilities and anthropometric parameters. Therefore, the present study aims to compare the body composition and emotional intelligence of high achievers and low achievers' female hurdlers of the All India Inter-University level.

Methods and Procedure

The current study was carried out using the descriptive method of research. The investigator used a purposive random sampling approach to gather the data. The sample included 23 female 100 m hurdlers comprising high achievers (N1=8) and low achievers (N2=15), who had competed in the All-India

Inter-University Championship from December 25 to December 31, 2015, at Punjabi University, Patiala. The age range of the subjects was 18 to 25 years. The body composition characteristics were measured using a body composition monitor with a scale called the HBF-361. The emotional intelligence scale created by Hyde, Pethe, and Dhar was used to evaluate emotional intelligence (2002). Researchers used an independent "t" test to assess the significance of the difference between the means of high achievers' and low achievers' hurdlers.

Results of the Study

The results of the study are presented in the following tables.

Table 1: Analysis of body composition characteristics, emotional intelligence and physiological characteristics between high achievers and low achievers of 100 m event

Variables		High Achievers (N=8)			Low Achievers (N=15)			t- ratio
		Mean	S.D	S.E.M	Mean	S.D.	S.E.M	
Body Composition	Body Fat Percentage	19.05	.97	.34	21.06	2.71	.69	2.58*
	BMI	19.99	.44	.15	19.69	.99	.25	.97
	Skeletal Muscle Mass	28.93	1.41	.49	27.37	1.59	.41	2.41*
	BMR	1170	44.05	15.57	1161	77.03	19.89	.58
	Visceral Fat	1.63	.74	.26	2.53	.82	.21	2.1*
Emotional Intelligence		127.9	7.16	2.53	122.1	3.31	.85	2.15*

*Significant at .05 level (t=.2.08) **Significant at .01 level (t=2.84)

Table-1 depicts the mean, standard deviations and values of SEM for body composition characteristics and emotional intelligence among high achievers and low achievers 100 m female sprinters. In the variable of body composition characteristics, the mean value of body fat percentage, skeletal muscle mass and visceral fat for high achievers 100 m sprinters was found to be 19.5, 28.93 & 1.63 and for low achievers sprinters, it was computed to be 21.06, 27.37 & 2.53, respectively. The t-value testing the significance of mean difference between the high achievers and low achievers for body fat percentage, skeletal muscle mass and visceral fat came out to be 2.58, 2.41, & 2.1, which is significant at 0.05 level of significance, for df 21. Hence, it may be interpreted that high achievers 100 m hurdlers possessed significantly lesser body fat percentage and visceral fat, and greater skeletal muscle mass as compared to low achievers 100 m sprinters. Further, the high achievers 100 m hurdlers have depicted a somewhat higher mean value for body mass index and basal metabolic rate than low achievers 100 m sprinters. However, none of such mean differences were found to be significant. So, it may be interpreted that in the case of body mass index and basal metabolic rate, there existed no significant differences between the high achievers and low achievers 100 m hurdlers.

In the variable of emotional intelligence, the mean value of high achievers 100 m hurdlers was found to be 127.9 and for low achievers hurdlers, it was computed to be 122.1, respectively. The t-value testing the significance of mean difference between the high achievers and low achievers for emotional intelligence came out to be 2.1, which is significant at 0.05 level of significance, for df 21. Hence, it may be interpreted that high achievers 100 m sprinters were significantly emotionally more intelligent as compared to low achievers 100 m sprinters.

Discussion of Findings

It has been found from the result that high achievers of 100 mh event possess greater body mass index, skeletal muscle mass and basal metabolic rate, and body lesser body fat

percentage and visceral fat than low achiever runners of 100 mh event. The 100 m hurdlers with higher achievements were found to have a noticeable contrast in skeletal muscle mass compared to those with lower achievements. This suggests that greater skeletal muscle mass contributes to better performance in the 100 m hurdles, as increased lean body mass leads to higher energy output. The same results have been reported by (McNeal & Sands, 1999) [15]. They found that in hurdle to run, maximum lean body mass and muscle mass and minimum percentage of body fat are required. Janisza and Anna (2003) have also reported a significant relationship between hurdle performance and muscle mass. However, there was an insignificant difference found in body fat percentage, body mass index, basal metabolic rate, and visceral fat between high-achiever and low-achiever hurdlers. It has been also found that high achievers were significantly more emotionally intelligent than low achievers of 100 mh. The evidence suggests that effective management of emotions is crucial for high performance, as top performers consistently regulate their emotions in varied competitive situations.

Conclusion

It has been found that high achievers female hurdlers have shown significantly higher skeletal muscle mass and emotional intelligence and lesser body fat percentage and visceral fat in comparison to low achievers 100 m hurdlers. However, an insignificant difference was also observed between high-achiever hurdlers and low-achiever hurdlers in the variables of body mass index and basal metabolic rate.

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