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Aerobic and anaerobic capacity between rural and urban wrestling female players of Haryana- A Comparative study

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Abstract

The purpose of the study was to compare the aerobic and anaerobic capacity between rural and urban wrestling female players of Haryana. The study was conducted on 80 players (N=80) 40 Rural and 40 Urban wrestling female players from Hisar District of Haryana. For the study, The aerobic capacity was measured by 9-minute run and walk test scoring will be in meters and nearest to 25 meters and anaerobic capacity was measured by 50-meter dash and the score was that time elapsed in the nearest 1/10th of a second. The 'T' test was used for statistical analysis of data and level of significance was set at 0.05 levels.

Keywords: Aerobic capacity, Anaerobic capacity, Rural, Urban, Wrestling Female.

Introduction

The aerobic capacity indicates the general magnitude of aerobic metabolic processes in the human body and an athlete, and represents larger part of the total energy capacity that he owns (Ponorac, Matavulj, Grujić, Rajkovača, & Kovačević, 2005) [32]. On the other hand, the term "maximal oxygen consumption" generally refers to the intensity of the aerobic process and represents the ability of a body to, at a certain point, consume the greatest amount of oxygen (Živanić, Životić-Vanović, Mijić, & Dragojević, 1999). Maximal oxygen consumption or maximal aerobic capacity is the best indicator of cardiorespiratory endurance and aerobic fitness (Stojiljković, Radovanović, & Savić, 2010). Through the evolution of basketball over time three playing positions were defined: guard, wing and center; and each has its own characteristics and role in the game. The characteristics of each position are reflected in the anthropometric (Jeličić, Sekulić, & Marinković, 2002) [17], situational (Marinković, 2010; Sindik & Jukić, 2011; Trninić, Jeličić, & Jelaska, 2011) [22, 37] and functional peculiarities of the players. The players in center positions move mostly near the basket, and with their body domination they perform jumps and movements in the area, while on the other hand, the guards have an important role in the organization of the game and activities in the external position (Krause, 1991) [20]. Wingers are tasked to support the guards in the offense and the centers in the defense, thereby their role is a little more complex (Jordan & Martin, 1995) [18]. Due to the different roles and tasks that must be manifested in the game, the players are also different according to their physiological aspect. The energy systems that are involved are different for each playing. The Differences in Aerobic Capacity of Basketball Players in Different Playing Positions 75 position. Therefore their maximum aerobic capacity is different and according to different studies they showed a range of 40 (ml·kg⁻¹·min⁻¹) up to 75 (ml·kg⁻¹·min⁻¹) (Matković, Matković, & Knjaz, 2005) [24]. There is a smaller number of studies which specifically address maximal oxygen consumption in university basketball players. However, some that stand out indicate that American university players have a maximum oxygen consumption of 65.2 ± 6.2 (ml·kg⁻¹·min⁻¹) (Tavino, Bowers, & Archer, 1995) while other authors have collected data that they have Vo₂max values of 53.0 ± 4.7 (ml·kg⁻¹·min⁻¹) (Caterisano, Patrick, Edenfield, & Batson, 1997) [4]. Latin, Berg, & Baechle (1994) [21] investigated the aerobic capacities of a university basketball team and obtained data that guards have an average value of maximal oxygen consumption 56.0 (ml·kg⁻¹·min⁻¹), wings of 56.0 (ml·kg⁻¹·min⁻¹) and the centers of 55.0 (ml·kg⁻¹·min⁻¹).

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Objective: The purpose of the study was to compare the aerobic and anaerobic capacity between rural and urban wrestling female players of Haryana

Methods: To achieve the purpose, 80 wrestling female players (40 urban and 40 rural Players) of Hisar District were selected for the current study. The ages of the players were 14 yrs to 19 yrs. The aerobic and anaerobic capacity of the wrestlers was measured with help of cooper’s 12 min. run/ walk test and 50

mts dash test.

Statistical Analysis: To compare the aerobic and anaerobic capacity between rural and urban wrestling female players of Haryana ‘t’ test was applied. The level of significance was set at 0.05.

Result and Discussion of finding

Table 1: Mean Scores and standard deviation of Aerobic and Anaerobic capacity between rural and urban wrestling female players of Haryana

Game	N	Aerobic Capacity				Anaerobic Capacity			
		Mean	S.D	S.E.D	‘T’	Mean	S.D	S.E.D	‘T’
Urban Wrestling female players	40	2.63	.45	.72	2.175	6.82	.41	.65	4.65
Rural wrestling female players	40	2.40	.43	.69		6.42	.28	.43	

NS=Not Significant at 0.05 level

The mean values of urban and Rural wrestling female players on aerobic and anaerobic capacity mean score were 2.63 and 2.40 respectively S.D were .45 and .43 respectively and S.ED were .72 and .69 respectively the anaerobic capacity mean score were 6.83 and 6.42 respectively S.D were .41 and .28 respectively and S.E.D were .65 and .43 respectively. The results of study showed that there was no significant difference that exists between rural and urban wrestling female players on aerobic and anaerobic capacity. We can say that rural wrestling female players are having better aerobic and anaerobic capacity as compare to rural wrestling female players of Haryana.

The mean values of rural and urban wrestling female players on anaerobic capacity were 6.83 and 6.42 respectively S.D were .41 and .28 respectively. The obtained’ value was 4.65 significance of 0.05 level of confidence with DF 38. The results of study showed that there was no significant difference that exists between rural and urban wrestling female players on anaerobic capacity. The rural wrestling female players are having better anaerobic capacity i.e. 6.42 minutes as compare to urban female players i.e. 6.83 sec.

Table 2: The mean and standard deviation of aerobic capacity between rural and urban wrestling female players of Haryana in 50 yards run and walk

Variables	Game	N	Mean	S.D	S.E.D	D.F	‘t’ ratio
Aerobic capacity	Urban Wrestling F.P	40	2.63	.45	.72	38	2.175
	Rural Wrestling F.P	40	2.40	.43	.69	38	

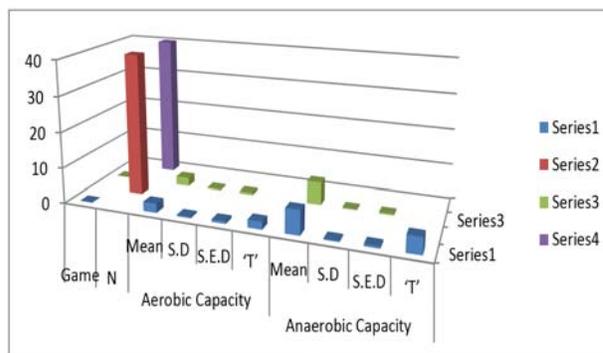
NS= Not Significant at 0.05 level

The mean values of rural and urban wrestling female players on aerobic capacity were 2.63 and 2.40 respectively S.D were .45 and .43 respectively. The obtained’ value was 2.175 significance of 0.05 level of confidence with DF 38. The results of study showed that there was no significant difference that exists between rural and urban wrestling female players on aerobic capacity. The rural players are having better aerobic capacity i.e. 2.40 minutes as compare to urban wrestling players i.e. 2.63.

Table 3: The mean and standard deviation of anaerobic capacity between rural and urban wrestling female players of Haryana in 60 yards run test

Variables	Game	N	Mean	S.D	S.E.D	D.F	‘t’ ratio
Anaerobic capacity	Urban Wrestling F.P	40	6.83	.41	.65	38	4.65
	Rural Wrestling F.P	40	6.42	.28	.43	38	

NS= Not Significant at 0.05 level



Graph 1: Graphical representation of Aerobic and Anaerobic capacity between Rural and Urban football male players of Haryana

Conclusion: From the result of the present study it was concluded that:

- ✓ No Significant difference was found in aerobic capacity between rural and urban wrestling female players of Haryana.
- ✓ Rural wrestling female players are having better aerobic capacity than urban wrestling female players of Haryana.
- ✓ No Significant difference was found in anaerobic capacity between rural and urban wrestling female players of Haryana.
- ✓ Rural wrestling female players are having better anaerobic capacity than urban wrestling female players of Haryana.

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