

"The effect of player height on a female volleyball team"

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ABSTRACT

The influence of height of 24 players on a female volleyball team in the age group of 16 to 21 years is being examined in this investigation. Anthropometric measurements were recorded and used for the analysis. Age, weight and height were the basic anthropometric parameters which were recorded. The height measurements of all 24 players were exclusively studied with the help of mean height calculations. The recorded data has been used to predict the outcome of a female volleyball team.

Keywords: Anthropometric parameters, volleyball, height, mean height.

INTRODUCTION

Volleyball players are always used to extreme physical activities be it in training sessions or in the matches. There is no partial treatment based on the gender, i.e. either male or female, both genders are always subjected to lot of extreme physical activities. Players have to be calm and maintain patience to overcome the physical load [1]. The anthropometric profile of a player plays an important part in the game. To be dynamic in the game, a player has to have perfect anthropometric profile [2, 3 and 4]. The player height influences the dynamic response of the player [5]. The required optimal height is to be set first and this height can be used to form a female volleyball team. The intention of this work is to know the impact of anthropometric parameters, especially player height, on the female volleyball team.

EXPERIMENTAL DETAILS AND DISCUSSION

In this study, female student players from JSS Banashankari Arts, Commerce and Shantikumar Gubbi Science College, Dharwad, Karnataka, India. (age group - 16 to 21 years, category - female) were taken. To know the anthropometric profile of the volleyball players, each one of the players were requested for the anthropometric measurements like their age (years), height (in centimetre) and weight (in kilogram) were recorded.

Table 1: The Anthropometric measurements of the female volleyball players.

<i>Players Number</i>	<i>Age (yrs)</i>	<i>Height (cm)</i>	<i>Weight (kg)</i>	<i>Players Number</i>	<i>Age (yrs)</i>	<i>Height (cm)</i>	<i>Weight (kg)</i>
<i>Player 1</i>	16	152	48	<i>Player 13</i>	18	169	58
<i>Player 2</i>	19	151	45	<i>Player 14</i>	19	167	56
<i>Player 3</i>	18	154	51	<i>Player 15</i>	16	166	54
<i>Player 4</i>	21	158	50	<i>Player 16</i>	21	165	54
<i>Player 5</i>	17	155	53	<i>Player 17</i>	17	169	55
<i>Player 6</i>	20	159	52	<i>Player 18</i>	21	168	56
<i>Player 7</i>	17	161	57	<i>Player 19</i>	16	166	54
<i>Player 8</i>	20	160	56	<i>Player 20</i>	20	173	61
<i>Player 9</i>	18	160	57	<i>Player 21</i>	16	174	59
<i>Player 10</i>	21	162	58	<i>Player 22</i>	19	172	60
<i>Player 11</i>	16	164	55	<i>Player 23</i>	18	170	61
<i>Player 12</i>	19	168	59	<i>Player 24</i>	19	171	59

Table 1 shows anthropometric measurements of the female volleyball players. Table 2 shows the frequency-midpoint-mean height table for the female volleyball players. This table is having the entries based on the frequency (f), cumulative frequency (c_f) and height range of the players. The total players are 24 in numbers with midpoint (m) of the height range. The product of frequency and midpoint ($f \times m$) is having total of 3933 of 24 players. Now the mean is applied to the team keeping height into consideration. As per the mean formulae, 3933 is divided by 24 players to get the mean height of 163.8 cm.

Table 2: The frequency-midpoint-mean height table for the female volleyball players.

Sl. No.	Height, h (cm)	Frequency (f)	Cumulative Frequency (c_i)	Midpoint (m)	Frequency x Midpoint (f x m)	Range
1	150 -154	3	3	152	456	1 to 3
2	155 -159	3	6	157	471	4 to 6
3	160 -164	5	11	162	810	7 to 11
4	165 -169	8	19	167	1336	12 to 19
5	170 -174	5	24	172	860	20 to 24
	Mean = 163.8	Total = 24			Total = 3933	

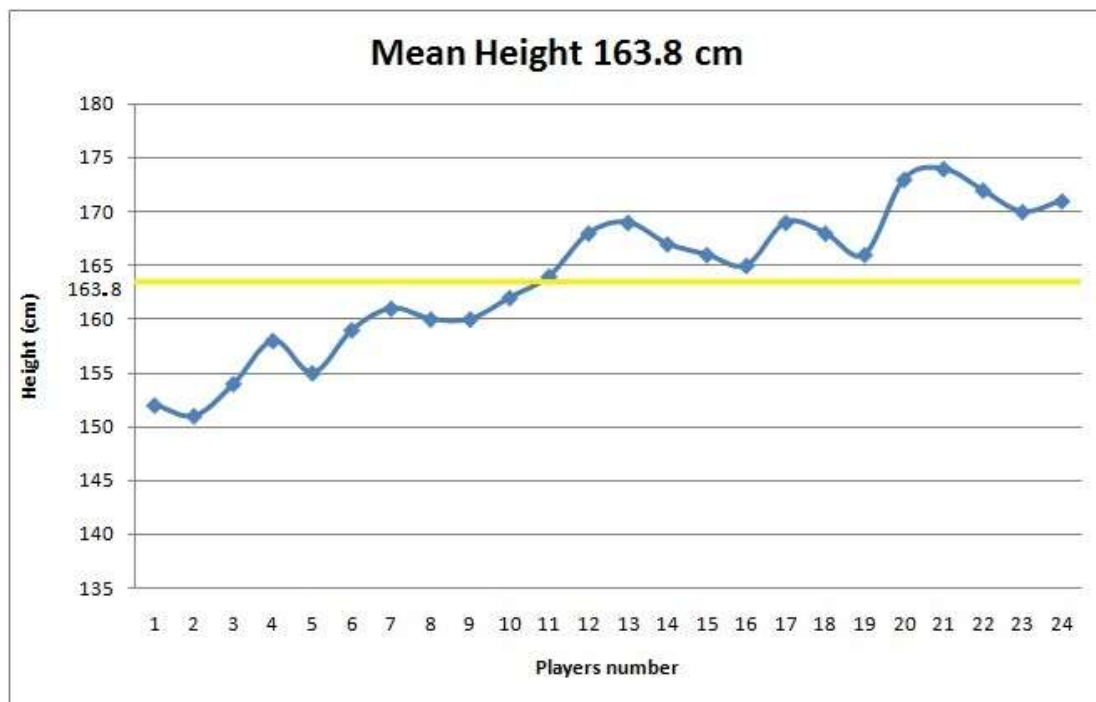


Figure 1: The mean height graph for the female volleyball players.

Figure 1 shows the mean height graph for the female volleyball players. In this graph, mean height of 163.8 cm is marked to get the optimal height required for forming the female volleyball team from the available players. This mean height of 163.8 cm indicates that a player has to have minimum height of 160 cm because 163.8 cm falls in the range of 160 to 164 cm as highlighted in the table 2. Therefore, the female volleyball team of 12 players can be formed based on this mean height of 163.8 cm. A player with 160 cm or more height will be good for the team as more player height will give advantage for the team in the game play.

CONCLUSION

Anthropometric measurements of the player influence the gameplay and sometimes also the game result. Anthropometric profile can be good only if a player is first maintaining a healthy lifestyle. Player height will influence the game as the player with more height has the maximum reach of the volleyball in the home courtside and thereby home team will be benefitted. The opponent team reply will be received by the home team players comfortably when all 6 players inside the court will be having comfortable reach; this is because all players will be having height 160 cm or more. The mean height should be calculated for any team to be able to perform in the game and predict the result. Around 14 players out of 24 are having height more than the mean height of 163.8 cm. All these 14 players (height more than 163.8 cm) will be advantage for the team.

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