

"The effect of player weight on a female volleyball team."

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ABSTRACT

The influence of players body weight on a female volleyball team in the age group of 14 to 18 years is being examined in this investigation. Anthropometric measurements were recorded and used for the analysis. Age, height and weight were the basic anthropometric parameters which were recorded. The weight measurements of 24 players were exclusively studied with the help of mean weight calculations. The recorded data has been used to project the outcome of a female volleyball team.

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

INTRODUCTION

In the training sessions or in the matches, the volleyball players are subjected to physical activities which are always extreme. Based on the player gender, i.e. either male or female, there is no partial treatment and both genders are used to lot of extreme physical activities. To overcome the physical load, players have to be calm and maintain patience [1]. The anthropometric profile of a player holds a crucial part in the game. A player has to have a perfect anthropometric profile to perform dynamically in the game [2, 3 and 4]. The player weight influences the dynamic response of the player [5]. The required optimal weight is to be set first and this weight can be used to form a female volleyball team. The intention of this study is to know the impact of anthropometric parameters, especially player weight, on the female volleyball team.

EXPERIMENTAL DETAILS AND DISCUSSION

In this study, female student players from DYES sports hostel, Hassan, Karnataka - India (age group - 14 to 18 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>	14	161	46	<i>Player 13</i>	16	168	62
<i>Player 2</i>	17	165	48	<i>Player 14</i>	17	166	63
<i>Player 3</i>	16	168	54	<i>Player 15</i>	14	161	64
<i>Player 4</i>	18	169	51	<i>Player 16</i>	18	169	63
<i>Player 5</i>	15	163	52	<i>Player 17</i>	14	162	62
<i>Player 6</i>	17	167	58	<i>Player 18</i>	17	167	68
<i>Player 7</i>	15	164	55	<i>Player 19</i>	15	166	65
<i>Player 8</i>	17	166	58	<i>Player 20</i>	18	168	66
<i>Player 9</i>	14	162	57	<i>Player 21</i>	16	167	67
<i>Player 10</i>	18	168	56	<i>Player 22</i>	17	169	71
<i>Player 11</i>	16	166	60	<i>Player 23</i>	18	168	74
<i>Player 12</i>	17	167	64	<i>Player 24</i>	17	169	70

Table 1 shows anthropometric measurements of the female volleyball players. Table 2 shows the frequency-midpoint-mean weight table for the female volleyball players. This table is having the entries based on the frequency (f), cumulative frequency (c_f) and weight range of the players. The total players are 24 in numbers with midpoint (m) of the weight range. The product of frequency and midpoint ($f \times m$) is having total of 1453 of 24 players. Now the mean is applied to the team keeping weight into consideration. As per the mean formulae, 1453 is divided by 24 players to get the mean height of 60.5 kg.

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

Sl. No.	Weight, w (kg)	Frequency (f)	Cumulative Frequency (C _f)	Midpoint (m)	Frequency x Midpoint (f x m)	Range
1	45 – 49	2	2	47	94	1 to 2
2	50 – 54	3	5	52	156	3 to 5
3	55 - 59	5	10	57	285	6 to 10
4	60 – 64	7	17	62	434	11 to 17
5	65 – 69	4	21	67	268	18 to 21
6	70 – 74	3	24	72	216	22 to 24
	Mean = 60.5	Total = 24			Total = 1453	

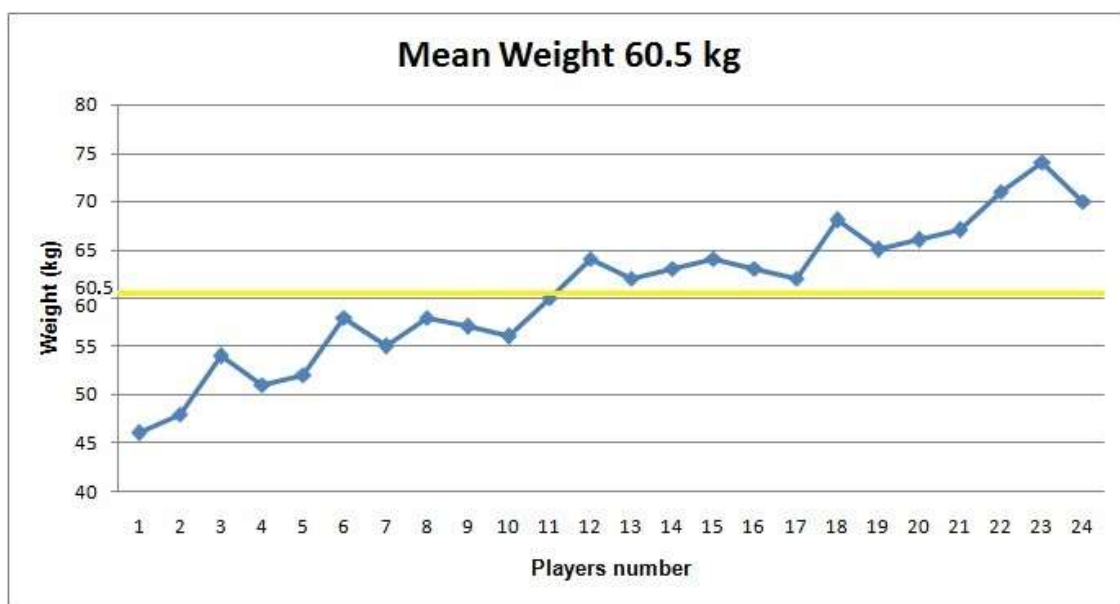


Figure 1: The mean weight graph for the female volleyball players.

Figure 1 shows the mean weight graph for the female volleyball players. In this graph, mean weight of 60.5 kg is marked to get the optimal weight required for forming the female volleyball team from the available players. This mean weight of 60.5 kg indicates that a player has to have optimal weight of 60 kg because 60.5 kg falls in the range of 60 to 64 kg as highlighted in the table 2. Therefore, the female volleyball team of 12 players can be formed based on this mean weight of 60.5 kg. A player with 55 to 64 kg weight will be good for the team as a controlled optimal player weight will give advantage for the team in the game play.

CONCLUSION

Anthropometric measurements of the volleyball player influence the gameplay and also the result of the game. Player weight will influence the game as the player with a controlled optimal weight 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 weight 55 to 64 kg. The mean weight should be calculated for any team to be able to perform in the game and predict the result. As per the mean weight of 60.5 kg, around 12 players out of 24 are having weight in the range of 55 kg to 64 kg (approx. 5 kg more and less to 60.5 kg). All these 12 players (weight within 55 to 64 kg range) will be advantage for the team.

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