Analysis of Selected Anthropometric Variables of Junior Volleyball Men Teams in FIVB World Championship during – 2009

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Abstract

      The purpose of the study was to analyse the selected anthropometric variables of the junior volleyball men teams in the FIVB World Championships, during the year 2009. To achieve the purpose of the study, top eight teams of the Junior World Championships during the year 2009 were selected. The top eight teams were from Brazil, Cuba, Argentina, India, Russia, Belgium, Iran and USA. Height and weight were selected as anthropometrical variables and tested using stadiometer and electronic weighing machine respectively during the tournament. To test the significance of the mean difference among the top eight teams, analysis of variance (ANOVA) was used. In case of any significance of mean difference on the criterion measure, to find out which pair of group was better among the others, the Scheffe's post – hoc test was applied. The level of significance was fixed at 0.05 level. The results reveal that the Russian volleyball players are having better standing height followed by USA, Brazil, Argentina, Cuba, Iran, India and Belgium. The results reveal that the USA volleyball players have recorded high in the body weight followed by Russia, Argentina, Brazil, Iran, Cuba, India and Belgium. From the analysis it was concluded that there were no significant differences in standing height among the top eight volleyball teams. From the analysis it was concluded that in the body weight significant differences are found between India and USA, Belgium and USA, Iran and USA and there was no differences between other countries.

Keywords: Standing Height, Body Weight, Volleyball, Countries, Analysis.

Introduction

Volleyball is played by sixty million people in more than two hundred and eighteen countries. In Eastern Europe, Asia and South America's top games draw crowds equal to soccer matches. Volleyball is considered as a top level competitive sport in more than fifty countries. The game of Volleyball was invented in 1895 by William G Morgan who worked for the Y.M.C.A in Holyoak, Massachusetts. His early form of this game was designed to provide mild exercise for large groups of businessmen. The original game was very simple and number of players batted a basketball bladder backward and forward over a tennis net which was fixed at a height of six feet. Since the game was developed and spread worldwide. The main reason of its popularity was that it can be played indoors and outdoors, it need little space compared to other games, and it can be played by both sexes and over a considerable age range. Play can be tremendously in varying standards from a purely recreations level on the beach and in the park, through all the levels of clubs and school level competitions, right up to international level. The way in which the game is played now is far away from which was designed by William G Morgan. Decades of competition have produced well performed skills and a steady development of new tactics as coaches strive for ever higher standard of play. (McGown, 1994).

Methodology

The purpose of the study was to analyse the selected anthropometric variables of Junior Volleyball men teams in the FIVB World Championships during the year 2009. To achieve the purpose of the study, top eight teams from Junior World Championships during the year 2009 were selected. The top eight teams were from Brazil, Cuba, Argentina, India, Russia, Belgium, Iran and USA. Height and weight were selected as anthropometrical variables and tested using stadiometer and electronic weighing machine respectively during the tournament. To test the significance of mean difference among the top eight teams analysis of variance (ANOVA) was used. In case of any significance of mean difference on the criterion measure, to find out which pair of group was better among the others, the Scheffe's post – hoc test was applied. The level of significance was fixed at 0.05 level.

Results and Discussions

The results are presented in the following

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tables,

Table I. Mean and standard deviation of the selected anthropometric variables of the junior volleyball men teams in the fivb world championships during the year 2009

Sl.No	Country	Variables	Mean	SD (±)
1	**Brazil**	Standing Height	197.58	7.98
		Body Weight	84.75	7.77
2	**Cuba**	Standing Height	196.41	7.01
		Body Weight	80.50	6.97
3	**Argentina**	Standing Height	196.50	6.90
		Body Weight	86.00	7.89
4	**India**	Standing Height	194.75	8.87
		Body Weight	80.25	8.35
5	**Russia**	Standing Height	198.66	9.93
		Body Weight	88.16	9.57
6	**Belgium**	Standing Height	194.08	9.93
		Body Weight	80.25	868
7	**Iran**	Standing Height	196.25	8.59
		Body Weight	84.41	9.56
8	**USA**	Standing Height	198.16	7.79
		Body Weight	90.25	7.78

The mean and standard deviation of the selected anthropometric variables of the Junior Volleyball men teams in the World Championships during the year 2009 were numerically presented in the above table. The table reveals that the mean scores of standing height of Russia (198.66) was higher than the other countries and in the body weight of USA (90.25) was higher than the other countries.

Table II. Analysis of variance of selected anthropometric variables of the junior volleyball men teams in the fivb world championships during the year 2009

Sl. No	Variables	Source of Variation	Sum of Squares	df	Mean Squares	F-value
1	**Standing Height**	BG	211.15	7	30.16	0.47
		WG	5588.58	88	63.50	
2	**Body Weight**	BG	1208.40	7	172.62	2.46*
		WG	6164.58	88	70.05	

* P < 0.05 Table F, df (7,88) (0.05) = 2.11

The result of analysis of variance was presented in Table II. The obtained F- ratio on body weight was 2.46 which as greater than the table F-ratio of 2.11. Hence, it was significant (P<0.05) for the degrees of freedom (7,88) at 0.05 level of confidence. Since the F value of body weight was significant, the Scheffe's post-hoc test was further computed to find out which pair of the group was better among others and the results were tabulated in the Table III. However the obtained F value for standing height among the countries was lesser than the table value of 2.11 which indicating no significant difference among the eight countries at 0.05 level of confidence.

Table III. Scheffe's post-hoc test for mean differences between the junior volleyball men teams in the fivb world championships during the year 2009 on body weight

| Body Weight									
Means								Mean Difference	CI
Brazil	Cuba	Argentina	India	Russia	Belgium	Iran	USA		
84.75	80.50	--	--	--	--	--	--	4.25	9.57
84.75	--	86.00	--	--	--	--	--	1.25	9.57
84.75	--	--	80.25	--	--	--	--	4.50	9.57
84.75	--	--	--	88.16	--	--	--	3.41	9.57
84.75	--	--	--	--	80.25	--	--	4.50	9.57
84.75	--	--	--	--	--	84.41	--	0.34	9.57
84.75	--	--	--	--	--	--	90.25	5.50	9.57
--	80.50	86.00	--	--	--	--	--	5.50	9.57
--	80.50	--	80.25	--	--	--	--	0.25	9.57
--	80.50	--	--	88.16	--	--	--	7.66	9.57
--	80.50	--	--	--	80.25	--	--	0.25	9.57
--	80.50	--	--	--	--	84.41	--	3.91	9.57
--	80.50	--	--	--	--	--	90.25	9.75*	9.57
--	--	86.00	80.25	--	--	--	--	5.75	9.57
--	--	86.00	--	88.16	--	--	--	2.16	9.57
--	--	86.00	--	--	80.25	--	--	5.75	9.57
--	--	86.00	--	--	--	84.41	--	1.59	9.57
--	--	86.00	--	--	--	--	90.25	4.25	9.57
--	--	--	80.25	88.16	--	--	--	7.91	9.57
--	--	--	80.25	--	80.25	--	--	0.00	9.57
--	--	--	80.25	--	--	84.41	--	4.16	9.57
--	--	--	80.25	--	--	--	90.25	10.00*	9.57
--	--	--	--	88.16	80.25	--	--	7.91	9.57
--	--	--	--	88.16	--	84.41	--	3.75	9.57
--	--	--	--	88.16	--	--	90.25	2.09	9.57
--	--	--	--	--	80.25	84.41	--	4.16	9.57
--	--	--	--	--	80.25	--	90.25	10.00*	9.57
--	--	--	--	--	--	84.41	90.25	5.84	9.57

Table III shows that the mean difference between Argentina and Russia (9.75), India and USA (10.00), Belgium and USA (10.00), Iran and USA (5.84) were greater than the confidence interval value of 9.57, which shows significant difference at 0.05 level of confidence. The mean difference between Brazil and Cuba (4.25), Brazil and Argentina (1.25), Brazil and India (4.50), Brazil and Russia (3.41), Brazil and Belgium (4.50), Brazil and Iran (0.34), Brazil and USA (5.50), Cuba and Argentina (5.50), Cuba and India (0.25), Cuba and Russia (7.66), Cuba and Belgium (0.25), Cuba and Iran (7.66), Cuba and USA (0.25), Argentina and India (3.91), Argentina and Belgium (5.75), Argentina and Iran (1.59), Argentina and USA (4.25), India and Russia (7.91), India and Belgium (0.00), India and Iran (4.16), Russia and Belgium (7.91), Russia and Iran (3.75), Russia and USA (2.09), Belgium and Iran (4.16), Iran and USA (5.84) are lesser than the confidence interval value of 9.57, which shows insignificant difference at 0.05 level of confidence.

Figure I. Bar diagram showing the means of standing height of the junior volleyball men teams in the world championships during the year 2009
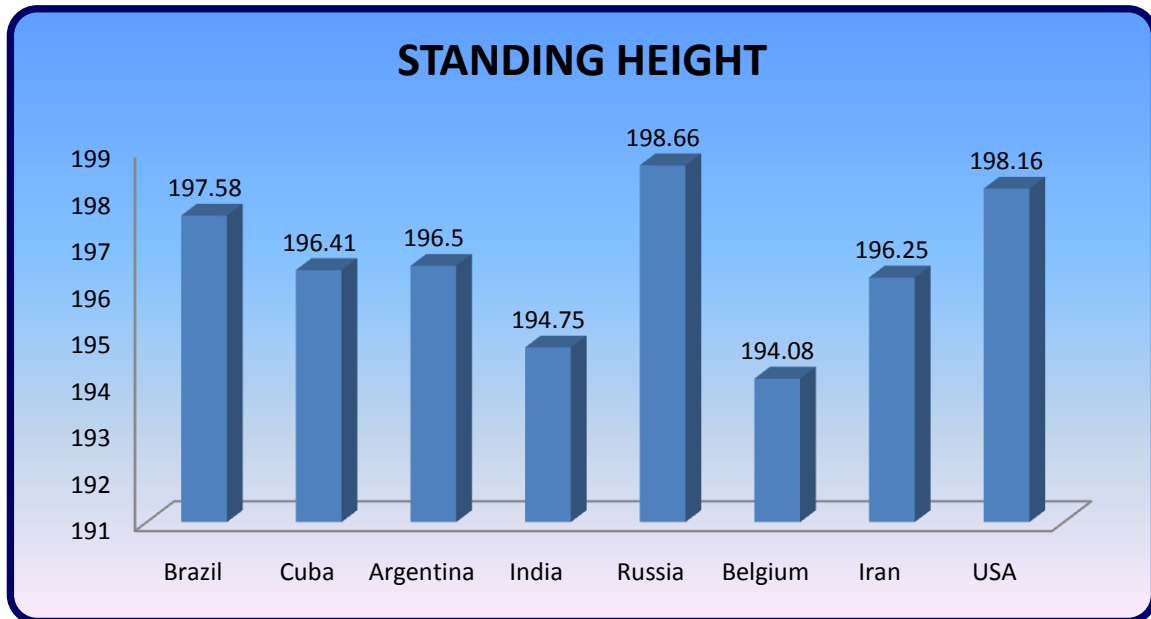
Figure II. Bar diagram showing the means of the body weight of the junior volleyball men teams in the world championships during the year 2009
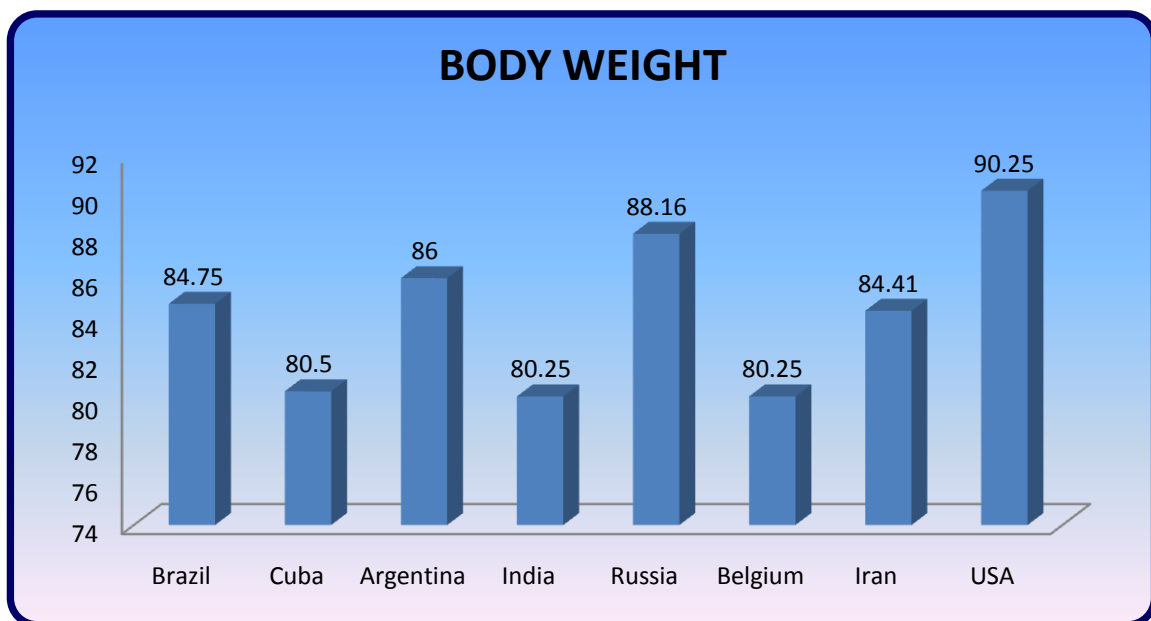
Conclusions

From the analysis of the data, the following conclusions were drawn.

1. The results reveal that the Russian Volleyball players were having better standing height followed by USA, Brazil, Argentina, Cuba, Iran, India and Belgium.
2. The results reveal that the USA Volleyball players recorded high in the body weight followed by Russia, Argentina, Brazil, Iran, Cuba, India and Belgium.
3. From the analysis it was concluded that there were no differences in standing height among the top eight Volleyball teams.
4. From the analysis it was concluded that in the body weight significant differences was found between India and USA, Belgium and USA, Iran and USA

and there was no differences between other countries.

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