

Comparison of Selected Psychological and Anthropometric Characteristics between Successful and Unsuccessful Volleyball Players

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Abstract: *The purpose of the study was to compare the selected psychological and anthropometric characteristics between successful and unsuccessful volleyball players. For the purpose of the study, female Volleyball players from 8 teams which participated in Senior National Volleyball Championship held at LNUPE, Gwalior from 28th December to 6th January, 2009-2010 were selected as the subject for the study. To measure the selected anthropometric variables (height, sitting height and leg length) anthropometric tape was used. Whereas, for assessing the Mental toughness Psychological Performance Inventory by James E. Loehr was used and Aggression was measured by Sports Aggression Inventory by P.S Shukla. The obtained data was analyzed by using statistical software (SPSS 20 version). To determine the comparison of selected psychological and anthropometric characteristics between successful and unsuccessful volleyball players, the independent t test was applied. The level of significant was set at 0.05. The results showed that there was a significant difference between successful and unsuccessful volleyball players in a) All of the selected anthropometric variables b) Aggression and c) Three subscales of Mental Toughness. Whereas, there was no significant difference in four subscales of Mental Toughness*

Keywords: *Mental toughness, Aggression, successful and unsuccessful volleyball players.*

I. Introduction

Elite performance in sports does not merely depend upon systematic training of physical, physiological variables and technical aspects of sport but, it also demand training of psychological characteristics of the sportsman for success.

Most top athletes and coaches believe that psychological factors play as crucial a role as physical attributes and learned skills in the make-up of champions. When physical skills are evenly matched – as they tend to be in competitive sport – the competitor with greater control over his or her mind will usually emerge as the victor. Mental strength is not going to compensate for lack of skill, but in close contest it can make the difference between winning and losing.

All sports are psychological as well as physical. They involve mental images, thought patterns, one's psyche and physical conditioning. It will however, allow one to draw the most from the conditioning one had. If one has trained more and better, his present capacity will be higher than the one who has trained less or less well. However, regardless of what is one's physical capacity might be at the moment; one has to look at his or her psyche in order to get the most from what he or she has. As the importance of winning continue to be stressed in competitive sports, the pressure and anxiety of performing well will also continue to increase. Thus, the problem with athlete getting ready for competition is often one of the calming them down not psyching them up.

Anthropometry comprises techniques that readily contribute to a more in-depth understanding of body composition & nutritional status, allowing the quantification of observations & the observation of changes with time. Championship performances no longer occur at random or as a result of chance alone. International sports performance in various sports & games are influenced by many factors such as level of physical, physiological & psychological abilities.

Volleyball requires tall players to play the game by hitting an inflated ball back & forth over a high net. It needs strong shoulders & wrists to withhold the pressure of the ball. Sodhiet al., (1980) reported data of different levels of Volleyball players and found that with the increase in the standard of the game, the average stature of the players was greater. This means tall players have a natural advantage in performance. Although Khosla & McBroom, (1985) argued that populations who are relatively short in stature are disadvantaged in sports requiring height, they may still be successful at international level. For example, the Japanese women's volleyball team won the gold medal at the Montreal Olympics with a team ranging in height from 169-180cm. Other players of the same competition averaged about 178cm.

As a result of the disparity in the existing literature, this study examines the anthropometric and psychological characteristics of Volleyball players and tries to compare the successful and unsuccessful Volleyball players.

II. Methodology

Selection of Subjects

For the purpose of the study, female Volleyball players from 8 teams which participated in Senior National Volleyball Championship held at LNUPE, Gwalior from 28th December to 6th January, 2009-2010 were selected as the subject for the study.

Instrument

1. Mental toughness was measured by Psychological Performance Inventory by James E.Loehr (1982).
2. Aggression was measured by Sports Aggression Inventory by P.S Shukla.
3. Height was measured by Anthropometric tape.
4. Sitting height was measured by Anthropometric tape.
5. Leg length was measured by Anthropometric tape.

Administration of the Test

Before administration of questionnaire and measurements, all the subjects were well oriented with the purpose of the study and to respond to questionnaire and cooperate in the collection of selected anthropometric measurements. The questionnaire and measurements was administered to each player after the completion of match (Senior National Matches). The directions were read by the researcher at a dictation speed to make the subjects understand the procedure to fill up the questionnaire. The subject was asked to record the answers for all questions. The subjects were given enough time to answer the questionnaire. The questionnaire was taken back after it was duly completed. Thorough screening was done to ensure that no question was left unanswered. The anthropometric measurements were obtained in the girl's hostel between 8:00 am to 10:00 am by following the exact procedure listed above.

III. Results

In order to analyze the data, t-test was used to compare the means of successful and unsuccessful Volleyball Players. The level of significance was set at 0.05.

Table 1: Comparison Of Aggression Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Aggression	Successful	11.08	2.79	2.56*
	Unsuccessful	12.77	3.64	

*significant at 0.05 level

Table 1 indicates there is a significant difference in relation to aggression between successful and unsuccessful volleyball players, as the calculated t value was (2.56) which was higher than the tabulated t-value (1.98) with (94) degree of freedom and .05 level of significance. It can also be learnt that mean of aggression in unsuccessful volleyball players was higher than that of successful volleyball players.

Table 2: Comparison of Self Confidence (Mental Toughness) Between Successful and Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Self Confidence	Successful	22.18	3.65	0.597
	Unsuccessful	21.62	5.40	

Table 2 shows that there was no significant difference in relation to self-confidence between successful and unsuccessful volleyball players as the calculated t value was (0.597) which was lower than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 3: Comparison of Negative Energy Control (Mental Toughness) Between Successful and Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Negative Energy Control	Successful	19.56	2.74	1.19
	Unsuccessful	20.52	4.41	

Table 3 reveals that there was no significant difference in relation to negative energy control between successful and unsuccessful volleyball players as the calculated t value was (1.19) which was lower than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 4: Comparison Of Attention Control (Mental Toughness) Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Attention Control	Successful	19.60	3.18	1.63
	Unsuccessful	20.33	4.33	

Table 4 shows that there was no significant difference in relation to attention control between successful and unsuccessful volleyball players as the calculated t value was (1.63) which was less than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 5: Comparison of Visual/Imagery Control (Mental Toughness) Between Successful and Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Visual/Imagery Control	Successful	23.22	3.37	3.815*
	Unsuccessful	20.00	4.79	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 5 shows that there was a significant difference in relation to Visual/Imagery control between successful and unsuccessful volleyball players as the calculated t value was (3.815) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 6: Comparison Of Motivation Level (Mental Toughness) Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Motivation Level	Successful	24.02	3.32	3.856*
	Unsuccessful	20.89	4.52	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 6 shows that there was a significant difference in relation to Motivation Level between successful and unsuccessful volleyball players as the calculated t value was (3.856) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 7: Comparison Of Positive Energy Control (Mental Toughness) Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Positive Energy Control	Successful	23.93	3.73	1.445
	Unsuccessful	22.68	4.69	

Table 7 shows that there was no significant difference in relation to Positive Energy Control between successful and unsuccessful volleyball players as the calculated t value was (1.445) which was less than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 8: Comparison of Attitude Control (Mental Toughness) Between Successful and Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Attitude Control	Successful	24.95	3.42	5.327*
	Unsuccessful	20.45	4.74	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 8 shows that there was a significant difference in relation to Attitude Control between successful and unsuccessful volleyball players as the calculated t value was (5.327) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 9: Comparison Of Height Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Height	Successful	172.98	6.02	7.094*
	Unsuccessful	163.36	7.22	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 9 shows that there was a significant difference in relation to Motivation Level between successful and unsuccessful volleyball players as the calculated t value was (7.094) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 10: Comparison of Leg Length Between Successful and Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Leg Length	Successful	102.35	5.80	8.21*
	Unsuccessful	94.20	3.69	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 10 shows that there was a significant difference in relation to Leg Length between successful and unsuccessful volleyball players as the calculated t value was (8.21) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

Table 11: Comparison Of Sitting Height Between Successful And Unsuccessful Volleyball Players

Variable	Group	Mean	S.D	t value
Sitting Height	Successful	86.82	3.22	2.75*
	Unsuccessful	85.00	3.27	

*significant at 0.05 level, $t_{.05} (94) = 1.98$

Table 11 shows that there was a significant difference in relation to Sitting Height between successful and unsuccessful volleyball players as the calculated t value was (2.75) which was more than the tabulated t value (1.98) with (94) degree of freedom at 0.05 level of significance.

IV. Discussion of Finding

The results of the study indicate that there is a significant difference between successful and unsuccessful senior women national volleyball players in relation to Aggression. The unsuccessful volleyball players have higher mean in aggression than successful volleyball player which indicate that unsuccessful player are more aggressive than successful volleyball player. This may be due to the fact that aggression alone may play a negative role in exhibiting better performance and unduly aggressive player is likely to exhibit such a behaviour which may affect his performance. In volleyball, an intelligent player is needed who plays the ball according to situation that is where there is space rather than hitting the ball with the maximum possible force.

The following subscales of mental toughness shows a significant difference in successful and unsuccessful volleyball player in visual/imagery control, motivational level and attitude control. A successful player must be able to visualize mentally the entire sequence of movement of the game, so that this may help a player do the movements in a perfect manner. Roure et al. have reported that imagery training is beneficial to player in exhibiting top class player. Whereas, motivation plays an important role in exhibiting better performance because it not only releases energy for executing skills in a befitting manner but it helps in performing extra feats ordinary thereby demoralizing opponents. It has been opined that positive attitude is one of the quality for any successful individual, especially, sportsperson. The literature is full of studies which indicate that a player with positive attitude not only works hard during training phase also plays very well during the game situation

The findings of the study also indicate that there is no significant difference between self-confidence, negative energy control, attention control and positive energy control between successful and unsuccessful volleyball player. It may be because it has been seen that average scores in self-confidence, negative energy control, attention control and positive energy control are likely to help the player to perform better in a game of volleyball. Extreme score on the above mention subscale are likely to adversely affect the performance.

It has been found that national level successful volleyball player have significantly greater height, leg length and sitting height than unsuccessful volleyball player. The above findings may be due to the fact that volleyball players ought to have a greater height in order to perform skills such as spiking, blocking etc. effectively and efficiently. These findings are in agreement with the opinion expressed by Sheppard JM et.al. Whereas, leg length plays a significant role in helping a player not only to have a greater reach but also to jump higher for executing various skills as the enhanced leverage due to longer legs is likely to generate more force for jumping higher and it is generally seen that greater sitting height will lead to greater length of the arms and is likely to help a player in not only executing skill efficiently but the skills may be executed with a greater force. Further the longer limbs are likely to help the player in covering the court besides the enhancement of reach for execution of skills. The findings of the study are supported by the findings of Stamm et al.

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