A Comparative Analysis of Mental Toughness of High and Low Altitude Football Players

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Abstract: The purpose of this study was to compare the mental toughness of High and Low altitude intervarsity football players. 40 football players, 20 High Altitude (North Zone Level) Football Players and 20 Low Altitude (North Zone Level) Football Players were selected through random sampling for this study. The age of the players ranged between 21-25 years and had been practicing in their sport/game for an average of 9 years. Mental Toughness Questionnaire was used. The mental toughness questionnaire was distributed among the participants approximately 14 hours before the competition. It was found that high altitude football players fall in high mental toughness levels while as low altitude football players fall in the average mental toughness level. To test the hypothesis that the High Altitude football Players and Low Altitude football Players were associated with statistically insignificantly different mean mental toughness, an independent samples t-test was performed. The independent samples t-test was associated with a statistically significant difference for mental toughness \( t(38) = 5.59, p < .001 \). It was concluded that High Altitude Football Players possess high mental toughness than Low Altitude Football Players.

Key Terms: High Altitude, Low Altitude, Mental Toughness, Football.

Introduction

The importance of mental toughness has been acknowledged by sports psychologists, and athletes. (Goldberg, 1998; Hodge, 1994). The definition given by (Goldberg, 1998) stated that, “Mental toughness is the ability to stand tall in the face of adversity. It’s a psychic resilience that allows you to rebound from setbacks and failures time and time again.”
(Jones et al., 2007) developed a framework of mental toughness with time-specific dimensions (training, competition, post-competition). Researchers tried to look at more specific sporting disciplines in order to establish a firm base, such as soccer (Coulter et al., 2010; Thelwell et al., 2005). Differences have been found between male and female athletes also. Emphasis has been laid that differences may be found between team-sport and individual-sport athletes, but to date, a small number of researches had been conducted to find what these differences actually are.

High Altitude: Mountain medicine recognizes High altitude = 1,500–3,500 meters (4,900–11,500 ft) on the basis of amount of oxygen in the atmosphere, (Thomas E. Dietz, 2006). The high altitude atmosphere is known for the hypoxia and the physiological and psychological changes one undergoes to acclimatize. Low Altitude: Literally it means; being at or having a relatively small elevation or upward extension or occurring at a relatively low altitude, the nearest area to sea, (Farlex Word-Net 3.0 Dictionary).

With respect to fewer researches on mental toughness of high and low altitude football players, the present study attempted to compare the mental toughness between high and low altitude interuniversity (north zone level) football players.

Methodology

**Demographic Questionnaire:** Participants were asked to indicate their age, gender, training age and level of their game. 40 cricket players, 20 high altitude north zone level cricket players and 20 Low altitude north zone level cricket players were the subjects of the study. The age of the players ranged between 21-25 years and had been practicing in their sport/game for an average of 9 years.

**Mental Toughness Questionnaire:** The mental toughness questionnaire prepared by Alan Goldberg (2012) was used to assess the level of mental toughness of the players. The questionnaire has 30 items, which
has 5 categories. Every statement has two possible responses i.e. True or False. The level of Mental Toughness depends upon the scores obtained. Every right answer marked was given ‘1’ number and every wrong answer marked was given ‘0’ number. The subjects were assigned to the following categories according to the scores obtained by them. 26 to 30 – Strong Mental Toughness, 23 to 25 – Average Mental Toughness and 22 or Below – Weak Mental Toughness. The questionnaire was given to the participants almost 14 hours before the competition. The participants were instructed to respond to each item according to how mentally tough they are.

Results

The High Altitude Football Players group (N= 20) was associated with Mental Toughness, \( M= 26.10 \) (SD= 0.95). By comparison, the Low Altitude Football Players group (N= 20) was associated with a numerically smaller Mental Toughness \( M= 24.20 \) (SD= 1.10). To test the hypothesis that the High Altitude Players and Low Altitude Players were associated with statistically insignificantly different mean Mental Toughness, an independent samples t-test was performed. Additionally, the assumption of homogeneity of variances was tested and satisfied via Levene’s F-test. The independent samples t-test was associated with a statistically significant difference, \( t (38) = 5.59, p < .001 \), Table 1.

A graphic representation of means is displayed in Figure 1.

Table 1

| Shows Mean, SD and independent samples t-test of Mental Toughness of High and Low Altitude Football Players. |

<table>
<thead>
<tr>
<th>Independent Samples Test</th>
<th>t-test for equality of Means</th>
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<tr>
<td></td>
<td>Group</td>
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<tr>
<td>Mental Toughness</td>
<td></td>
</tr>
<tr>
<td>HAFP</td>
<td>20</td>
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<tr>
<td>LAFP</td>
<td>20</td>
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</tbody>
</table>
p < 0.05*, HAFP: High Altitude Football Players, LAFP: Low Altitude Football Players.

**Figure 1**

Represents Mental Toughness of high and low altitude football players

**Discussion**

The mental toughness of high altitude football players was higher than low altitude football players. (Crust, Swann, & Allen-Collinson, 2016; Fawcett, 2011) stated that mental toughness is important for high altitude mountaineers. Experienced expedition leaders, mountain guides, doctors, and sherpas tended to direct efforts and make initial positive decisions. Furthermore, recent work (Crust et al., 2016) on Mental Toughness in high altitude mountaineering found that the experience was crucial in terms of survival and success in extreme conditions. The high altitude residents had become conversant with their surroundings. The acclimatization over the years may have increased the mental toughness of the players.

**Conclusion**
Native high altitude football players scored higher in mental toughness than their counterparts. Prolonged training and residence at high altitude should be given preference while selecting any kind of high altitude training programme for football players.

References


Farlex Word-Net 3.0 Dictionary, online