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A comparative study of mental toughness among individual, team and dual sports players of Guru Nanak Dev University

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Abstract

The purpose of this study was to compare mental toughness among individual, team and dual sports players of Guru Nanak Dev University. For the purpose of this study forty two (N=42), male subjects between the age group of 18-28 years (Mean \pm SD: Age 22 ± 1.89 (yrs), Body Height 168.02 ± 4.67 (cm), Body Mass 64.00 ± 3.18 (kg) volunteered to participate in the study. The investigator has used the questionnaire for measuring all the dimensions of mental toughness of the subjects. The Statistical Package for the Social Sciences (SPSS) was used for the analyses. To conclude, it is significant to mention that in relation to reboundability, ability to handle pressure, concentration and mental toughness that results of Analysis of Variance (ANOVA) among individual, team and dual sports players of Guru Nanak Dev University were found statistically insignificant. Furthermore, in relation to confidence and motivation that result of Analysis of Variance (ANOVA) among individual, team and dual sports players of Guru Nanak Dev University were found to be statistically significant.

Keywords: Mental toughness, Reboundability, ability to handle pressure, concentration, confidence, motivation

1. Introduction

Each psychological variable has its unique contribution towards sports performance but some of the variables are preferably and specifically suitable for few games. The psychological parameters such as personality traits, anxiety, self-esteem and mental toughness are among the factors that could be considered to determine psychological predictors (Anizu *et al.*, 2003 & Fourie, & Potgieter, 2001) [2, 11]. Mental toughness has recently been suggested to be an important characteristic for athletic success (Golby & Sheard, 2004; Loehr, 1986) [12, 21], and yet it remains one of the least understood terms in sport psychology (Jones, Hanton, & Connaughton, 2002) [17]. The mental toughness is utmost pre-requisite of Individual, Team and Dual Sports players. Bull *et al.* (2005) [3] observed on the basis of research that there is also the potential for difference in mental toughness from one sports and event to the other. Jones *et al.* (2002) [17] defines that cope better than your opponents with the many demands (competition, training, and lifestyle) that sports places on a performer. Specifically to be more consistent and better than the opponents in remaining determined, focused, confident, and in control under pressure. Gould *et al.* (2002) [13] examine the psychological characteristics of Olympic champions identified that mental toughness is a significant contributor to sports performance enhancement. Gould *et al.* (1987) [14] reported that 82 percent of wrestling coaches ranked mental toughness as the primary quality related to competitive success. Williams (1998) [24] denoted that mental toughness might be more important in determining the final outcome of a sporting event than factors such as speed and ability. Recently, rigorous scientific inquiry has lead to a more complete understanding of mental toughness (Bull, Shambrook, James, & Brooks, 2005; Connaughton, Wadey, & Hanton, 2008; Creasy, 2005; Jones, Hanton, & Connaughton, 2002, 2007; Stratton, 2004; Thelwell, Weston, & Greenlees, 2005) [3, 6, 7, 23, 17]. Investigators have defined mental toughness as: generally, superior ability to cope better than the opponents with the many demands and related pressures that occur at the highest level in sport (Connaughton *et al.*, 2008 & Adegbesan, 2008) [6].

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Jones *et al.* (2002) [17] identified twelve mental toughness characteristics. Stratton (2004) [23] further developed the list of characteristics, adding eight. Creasy (2005) [7] consolidated the characteristics found by Jones *et al.* (2002) [17] and Stratton (2004) [23]. More recently, Crust (2008) [8] found that 30 characteristics were necessary to adequately describe the construct. The variations in characteristics could be due to the context specific nature of mental skills (Jones, 2007 & Crust, 2009; Hoover, 2006) [9, 16]. Indeed, in a study of the psychological characteristics of Olympic champions, Gould *et al.* (2002) [13] identified mental toughness as the mental skill factor most frequently cited as a significant contributor to sports performance enhancement. The term mental toughness is intuitively appealing and used equally generously by players, coaches and the sports media, yet usually without adequate definition (Cashmore, 2002; Clough, Earle, &

Sewell, 2002; Gucciardi, 2009) [6, 5, 15]. But with the phenomenal and ever increasing popularity of psychological variables in the past few years, there is a lack of study on this particular discipline, for this purpose that the present study of mental toughness is proposed and undertaken using the sample from university level individual, team and dual sports players.

2. Material and Methods

2.1 Selection of Subjects

For the purpose of the present study, Forty Two (N=42), Male subjects between the age group of 18-28 years (Mean ± SD: Age 22±1.89 (yrs), Body Height 168.02±4.67 (cm), Body Mass 64.00±3.18 (kg) volunteered to participate in the study. The demographics of subjects are brought forth in Table-1.

Table 1: Demographics (N=42) of Players of Guru Nanak Dev University, Amritsar (N=42) (i.e., Individual Sport (N₁=12); Team Sports (N₂=24) and Dual Sports (N₃=06).

Variable (s)	Sample Size (N=42)			
	Total (N=42)	Individual Sport (N ₁ =12)	Team Sports (N ₂ =24)	Dual Sports (N ₃ =06)
Age (yrs)	22±1.89	22.41±1.78	21.83±1.80	21.83±2.63
Body Height (cm)	168.02±4.67	169±4.22	167.79±4.44	167±6.75
Body Mass (kg)	64.00±3.18	64.70±2.56	63.65±3.41	64±3.63

*N; sample size, yrs; years, cm; centimeters, kg; kilograms.

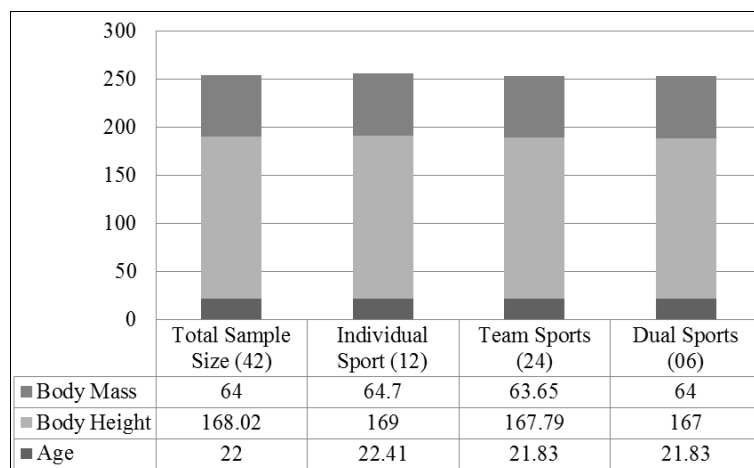


Fig 1: Demographics (N=42) of Players of Guru Nanak Dev University, Amritsar (N=42) (i.e., Individual Sport (N₁=12); Team Sports (N₂=24) and Dual Sports (N₃=06).

3. Selection of Tools

The scale is a standardized tool which has already been used in many research/psychological investigations. After consulting relevant literature, a 30 items self-report inventory with five sub-scales was used to measure mental toughness. Each sub-scales consisted of six items measuring the seven fundamental areas of mental toughness viz. The five fundamental areas of mental toughness viz. (a) Reboundability (b) Ability to handle pressure (c) Concentration (d) Confidence (e) Motivation.

4. Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) was

used for the analyses. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of Variance (ANOVA). For testing the hypotheses, the level of significance was set at 0.05.

5. Results

For each of the chosen variable, the result pertaining to Analysis of variance (ANOVA) among Individual, Team and Dual Sports players of Guru Nanak Dev University on the variable Mental Toughness (i.e., Reboundability, Ability to Handle Pressure, Concentration, Confidence and Motivation) are presented in the following tables:

Table 2: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regard to Reboundability.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	1.071	2	.536	.466	.631
Within Groups	44.833	39	1.150		
Total	45.905	41			

p-value is .631. Not significant at P > .05.

Table 3: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regard to Ability to Handle Pressure.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	2.411	2	1.205	.762	.474
Within Groups	61.708	39	1.582		
Total	64.119	41			

p-value is .474. Not significant at $P > .05$.

Table 4: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regard to Concentration.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	1.363	2	.682	.526	.595
Within Groups	50.542	39	1.296		
Total	51.905	41			

p-value is .595. Not significant at $P > .05$.

- It is evident from the results of Analysis of Variance (ANOVA) among Individual, Dual and Team Sports players with regards to Reboundability were found to be statistically insignificant ($P > .05$).
- It is evident from the results of Analysis of Variance (ANOVA) among Individual, Dual and Team Sports players with regards to Ability to Handle Pressure were found to be statistically insignificant ($P > .05$).
- It is evident from the results of Analysis of Variance (ANOVA) among Individual, Dual and Team Sports players with regards to Concentration were found to be statistically insignificant ($P > .05$).

Table 5: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regard to Confidence.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	8.268	2	4.134	4.314	.020
Within Groups	37.375	39	.958		
Total	45.643	41			

p-value is .020. The result is significant at $p < .05$.

Table 6: Analysis of post-hoc test among Individual, Team and Dual Sports players with regards to Confidence.

Multiple Comparisons			
Group (A)	Group (B)	Mean Difference	Sig.
Individual Sports (4.9167)	Team Sports	.62500	.209
	Dual Sports	1.41667*	.023
Team Sports (4.2917)	Individual Sports	-.62500	.209
	Dual Sports	.79167	.221
Dual Sports (3.5000)	Individual Sports	-1.41667*	.023
	Team Sports	-.79167	.221

- A glance at Table-6 showed that the mean value of Individual Sports group was 4.9167 whereas Team Sports had mean value as 80.3000 and the mean difference between both the groups was found 0.62500. This shows that the Individual Sports group had demonstrated significantly better on Confidence than their counterpart Team Sports group.
- The mean value of Individual Sports group was 4.9167 whereas Dual Sports had mean value as 3.5000 and the mean difference between both the groups was found 1.41667. This shows that the Individual Sports group had demonstrated significantly better on Confidence than their counterpart Dual Sports group.
- The mean value of Team Sports group was 4.2917 whereas Dual Sports had mean value as 3.5000 and the mean difference between both the groups was found 0.79167. This shows that the Team Sports group had demonstrated significantly better on Confidence than their counterpart Dual Sports group.

Table 7: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regard to Motivation.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	11.310	2	5.655	3.696	.034
Within Groups	59.667	39	1.530		
Total	70.976	41			

p-value is .034. The result is significant at $P > .05$.

Table 8: Analysis of post-hoc test among Individual, Team and Dual Sports players with regard to Motivation.

Multiple Comparisons			
Group (A)	Group (B)	Mean Difference	Sig.
Individual Sports (4.9167)	Team Sports	-.41667	.638
	Dual Sports	-1.66667*	.036
Team Sports (4.2917)	Individual Sports	.41667	.638
	Dual Sports	-1.25000	.099
Dual Sports (3.5000)	Individual Sports	1.66667*	.036
	Team Sports	1.25000	.099

- A glance at Table-8 showed that the mean value of Individual Sports group was 4.9167 whereas Team Sports had mean value as 4.2917 and the mean difference between both the groups was found 0.41667. This shows that the Individual Sports group had demonstrated significantly better on Motivation than their counterpart Team Sports group.
- The mean value of Individual Sports group was 4.9167 whereas Dual Sports had mean value as 3.5000 and the mean difference between both the groups was found

1.66667. This shows that the Individual Sports group had demonstrated significantly better on Motivation than their counterpart Dual Sports group.

- The mean value of Team Sports group was 4.2917 whereas Dual Sports had mean value as 3.5000 and the mean difference between both the groups was found 1.25000. This shows that the Team Sports group had demonstrated significantly better on Motivation than their counterpart Dual Sports group.

Table 9: Analysis of variance (ANOVA) results among Individual, Team and Dual Sports players with regards to Mental Toughness.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	2.411	2	1.205	.368	.694
Within Groups	127.708	39	3.275		
Total	130.119	41			

p-value is .694. Not significant at $P > .05$.

- It is evident from the results of Analysis of Variance (ANOVA) among Individual, Dual and Team Sports players with regards to Mental Toughness were found to be statistically insignificant ($P > .05$).

5. Discussion

Before embarking upon the discussion of results, it is quite significant to point out the differences exist in Mental Toughness among Individual, Team and Dual Sports players of Guru Nanak Dev University. The significant differences were found to be there with regard to Analysis of Variance (ANOVA) in respect to Mental Toughness which outlined significant differences among Individual, Team and Dual Sports players of Guru Nanak Dev University on the sub-variables i.e. Confidence and Motivation. Similar trends have been reported by Rathore *et al.* (2009) ^[21] wherein they found that the team game players were more mentally tough as compared to individual game players on the variable mental toughness. Mohammad *et al.* (2009) ^[20] elucidated that Malaysian professional football players had significantly better mental toughness as compared to low performer football players. Kimberly and Rank (2003) ^[18] inferred that sexual orientation based variations exist in mental toughness, in this way, they offer that imperative bits of knowledge for creating programs which address the requirements of athletes in connection to mental toughness. A perusal at Analysis of Variance (ANOVA) tables with regard to mental toughness of Individual, Dual and Team Sports players revealed insignificant differences among various sport groups on the sub-variable reboundability, ability to handle pressure, concentration and mental toughness. It can be summarized that Individual, Dual and Team Sports players equally developed on mentally bouncing back from setbacks and mistakes, ability to stay calm in the clutch, ability to focus and unshaken by setbacks and failures, motivational drive, successful completion, ability to accomplish the goals and Mental Toughness. These findings substantiate the assertion of Yadav (2014), additionally reasoned that mental toughness of national female volleyball players is higher than the national female kabaddi players. Singh and Kumar (2011) ^[22] concluded that All India intervarsity soccer players altogether varied in mental toughness than their counterpart; inter-collegiate soccer players.

6. Conclusions

To conclude, it is significant to mention in relation to Reboundability, Ability to Handle Pressure, Concentration

and Mental Toughness that results of Analysis of Variance (ANOVA) among Individual, Team and Dual Sports players of Guru Nanak Dev University were found to be statistically insignificant ($P > .05$).

Furthermore, in relation to Confidence and Motivation the result of Analysis of Variance (ANOVA) among Individual, Team and Dual Sports players of Guru Nanak Dev University were found to be statistically significant ($P < .05$).

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