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**Baljinder Singh Bal**

Guru Nanak Dev University,  
Amritsar, Punjab, India

**Kamal Kishore**

Khalsa College of Physical  
Education, Heir, Amritsar,  
Punjab, India

## A study on mental toughness among university level kabaddi players

**Baljinder Singh Bal and Kamal Kishore**

### Abstract

The purpose of this study was to compare Mental Toughness among Kabaddi Players of Guru Nanak Dev University, Punjabi University and Punjab University. For the purpose of this study One Hundred Forty Four (N=144), Male subjects between the age group of 18-28 years (Mean  $\pm$  SD: Age 22.25 $\pm$ 2.44 (yrs), Body Height 168.89 $\pm$ 4.31 (cm), Body Mass 66.09 $\pm$ 3.36 (kg)) volunteered to participate in the study. The investigator has used the questionnaire for measuring all the dimensions of mental toughness of the subjects and their overall mental toughness. The Statistical Package for the Social Sciences (SPSS) was used for all analyses. To conclude, it is significant to mention in relation to Rebound ability, Concentration, Motivation and Mental Toughness that results of Analysis of Variance (ANOVA) among Kabaddi Players (i.e., Guru Nanak Dev University, Punjabi University and Punjab University) were found statistically insignificant ( $P > .05$ ). Furthermore, in relation to Ability to Handle Pressure and Confidence that result of Analysis of Variance (ANOVA) among Kabaddi Players (i.e., Guru Nanak Dev University, Punjabi University and Panjab University) were found statistically significant ( $P < .05$ ).

**Keywords:** Mental toughness, rebound ability, ability to handle pressure, concentration, confidence, motivations

### 1. Introduction

Mental toughness is having the natural or developed psychological edge that enables you to generally cope better than your opponents with the many demands (competition, training, and lifestyle) that sport places on a performer and, specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure (Jones *et al.*, 2002) [1]. The concept of mental toughness (MT) originated from the literature on hardiness (Maddi, 2002) [2].

The lack of clarity and consistency regarding mental toughness is due, in part, to a significant gap in the literature. Many popular literature sources such as (Loehr, 1986) [3] and (Kuehl, and Tefertiller, 2005) [4], attempt to define and develop mental toughness programs. These sources provide inconsistent descriptions of mental toughness, not essential components. The empirical research on the construct of mental toughness is very sparse. In fact, Jones *et al.*, 2002 is the first empirical source that attempted to identify the components or attributes of mental toughness or a construct surrounding mental toughness. In 2002, Jones *et al.* recognized the need for clarification of mental toughness and attempted to define and identify the attributes of mental toughness as perceived by ten elite sport performers. This empirical study resulted in a definition of mental toughness and the identification of 12 attributes of a mentally tough performer. An “unshakeable belief in ones abilities” is a pertinent feature of MT and widely supported to be key to athletic success (Lane, 2014) [5].

Individual sports such as archery (Norlander, Bergman & Archer, 1999) where performance is to be conducted under concentration and with an audience are particularly challenging. A study (Kim *et al.*, 2015) [7] examined how different factors affected results in Korean archery.

### 2. Material and Methods

#### 2.1 Selection of Subjects

For the purpose of the present study, One Hundred Forty Four (N=144), Male subjects between the age group of 18-28 years (Mean  $\pm$  SD: Age 22.25 $\pm$ 2.44 (yrs), Body Height

**Correspondence**

**Baljinder Singh Bal**

Guru Nanak Dev University,  
Amritsar, Punjab, India

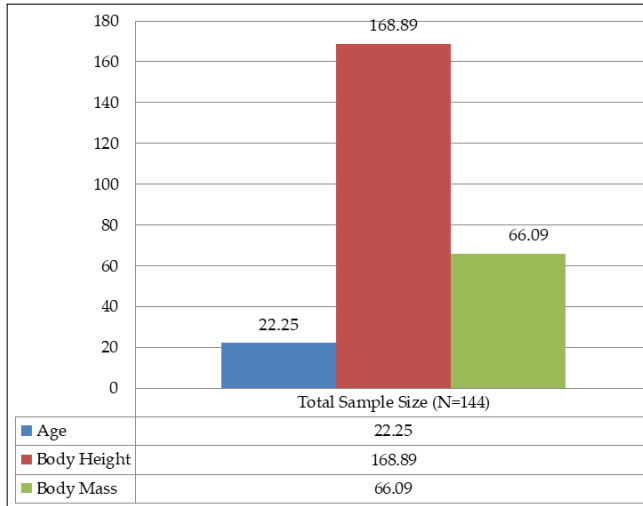
168.89±4.31 (cm), Body Mass 66.09±3.36 (kg) volunteered to participate in the study.

The demographics of subjects are brought forth in **Table 1**.

**Table 1:** Subject’s Demographics of Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Punjab University (N<sub>3</sub>=48))

Variable (s)	Sample Size (N=144)			
	Total N=144	Guru Nanak Dev University (N <sub>1</sub> =144)	Punjabi University (N <sub>2</sub> =144)	Panjab University (N <sub>3</sub> =144)
Age (yrs)	22.25±2.44	21.35±2.18	22±1.85	23.39±2.78
Body Height (cm)	168.89±4.31	168.95±4.46	168.20±4.16	169.52±4.31
Body Mass (kg)	66.09±3.36	66.08±3.44	66.16±2.99	66.02±3.69

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



**Fig 1:** Subject’s Demographics of Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Punjab University (N<sub>3</sub>=48)).

**3. Selection of Tools**

This 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) Rebound ability (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 all 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 Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the variable Mental Toughness (i.e., Rebound ability, Ability to Handle Pressure, Concentration, Confidence and Motivation) are presented in the following tables:

**Table 2:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Rebound ability

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	.014	2	.007	.005	.995
Within Groups	194.146	141	1.377		
Total	194.160	143			

The p-value is .995. The result is not significant at p > .05.

- It is evident from Table 2 that results of Analysis of Variance (ANOVA) among Kabaddi Players with regards to Reboundability were found statistically insignificant (P > .05).

statistically significant (P < .05). Since the obtained F-value was found significant, therefore, post-hoc test was employed to study the direction and significance of differences between paired means. The results of post-hoc test have been presented in Table 4.

**Table 3:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48) with regards to Ability to Handle Pressure

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	33.931	2	16.965	13.569	.000
Within Groups	176.292	141	1.250		
Total	210.222	143			

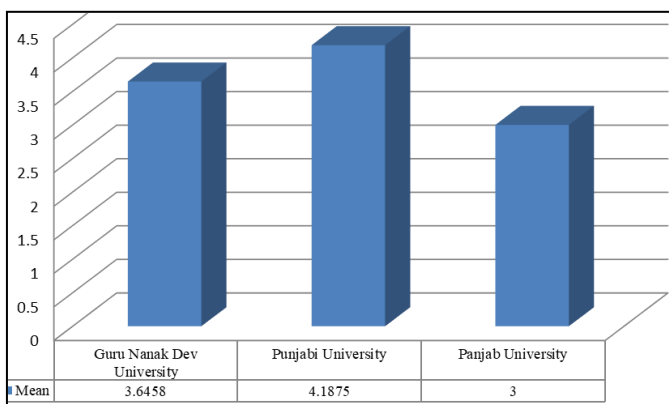
The p-value is .000. The result is significant at p < .05.

- It is evident from Table 3 that results of Analysis of Variance (ANOVA) among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Ability to Handle Pressure were found

**Table 4:** Analysis of post-hoc test among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Ability to Handle Pressure

Multiple Comparisons			
Group (A)	Group (B)	Mean Difference	Sig.
Guru Nanak Dev University (3.6458)	Punjabi University	-.54167	.063
	Panjab University	.64583*	.020
Punjabi University (4.1875)	Guru Nanak Dev University	.54167	.063
	Panjab University	1.18750*	.000
Panjab University (3.0000)	Guru Nanak Dev University	-.64583*	.020
	Punjabi University	-1.18750*	.000

- A glance at Table 4 showed that the mean value of Guru Nanak Dev University group was 3.6458 whereas Punjabi University had mean value as 4.1875 and the mean difference between both the groups was found .54167. This shows that the Punjabi University group had demonstrated significantly better on Ability to Handle Pressure than their counterpart's 3.6458 group.
- The mean value of Guru Nanak Dev University group was 3.6458 whereas Panjab University had mean value as 3.0000 and the mean difference between both the groups was found .64583. This shows that the Guru Nanak Dev University group had demonstrated significantly better on Ability to Handle Pressure than their counterpart's 3.0000 group.
- The mean value of Punjabi University was 4.1875 whereas Panjab University had mean value as 3.0000 and the mean difference between both the groups was found 1.18750. This shows that the Punjabi University had demonstrated significantly better on Ability to Handle Pressure than their counterpart's 3.0000 group.



**Fig 2:** Graphical representation of mean scores of Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Ability to Handle Pressure.

**Table 5:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48) with regards to Concentration.

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	1.625	2	.813	.725	.486
Within Groups	158.125	141	1.121		
Total	159.750	143			

The p-value is .486. The result is not significant at  $p > .05$ .

- It is evident from Table 5 that results of Analysis of Variance (ANOVA) among Kabaddi Players with regards to Concentration were found statistically insignificant ( $P > .05$ ).

**Table 6:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48) with regards to Confidence

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	49.764	2	24.882	33.453	.000
Within Groups	104.875	141	.744		
Total	154.639	143			

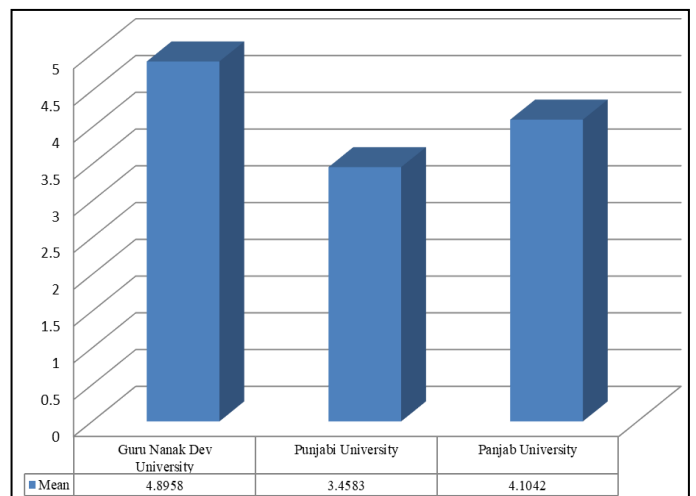
The p-value is .000. The result is not significant at  $p < .05$ .

- It is evident from Table 6 that results of Analysis of Variance (ANOVA) among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Confidence were found statistically significant ( $P < .05$ ). Since the obtained F-value was found significant, therefore, post-hoc test was employed to study the direction and significance of differences between paired means. The results of post-hoc test have been presented in Table 7.

**Table 7:** Analysis of post-hoc test among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Confidence

Multiple Comparisons			
Group (A)	Group (B)	Mean Difference	Sig.
Guru Nanak Dev University (4.8958)	Punjabi University	1.43750*	.000
	Panjab University	.79167*	.000
Punjabi University (3.4583)	Guru Nanak Dev University	-1.43750*	.000
	Panjab University	-.64583*	.002
Panjab University (4.1042)	Guru Nanak Dev University	-.79167*	.000
	Punjabi University	.64583*	.002

- A glance at Table 7 showed that the mean value of Guru Nanak Dev University group was 4.8958 whereas Punjabi University had mean value as 3.4583 and the mean difference between both the groups was found 1.43750. This shows that the Guru Nanak Dev University group had demonstrated significantly better on Confidence than their counterpart's 3.4583 group.
- The mean value of Guru Nanak Dev University group was 4.8958 whereas Panjab University had mean value as 4.1042 and the mean difference between both the groups was found .79167. This shows that the Guru Nanak Dev University group had demonstrated significantly better on Confidence than their counterpart's 4.1042 group.
- The mean value of Punjabi University group was 3.4583 whereas Panjab University had mean value as 4.1042 and the mean difference between both the groups was found .64583. This shows that the Panjab University group had demonstrated significantly better on Confidence than their counterpart's 3.4583 group



**Fig 3:** Graphical representation of mean scores of Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48)) with regards to Confidence.

**Table 8:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48) with regards to Motivation

Source of Variation	Sum of Squares	d.f.	Mean Square	F-value	p-value
Between Groups	1.542	2	.771	.609	.545
Within Groups	178.396	141	1.265		
Total	179.938	143			

The p-value is .545. The result is not significant at  $p > .05$ .

**Table 9:** Analysis of variance (ANOVA) results among Kabaddi Players (N=144) (i.e., Guru Nanak Dev University (N<sub>1</sub>=48), Punjabi University (N<sub>2</sub>=48) and Panjab University (N<sub>3</sub>=48) with regards to Mental Toughness

Source of Variation	Sum of Squares	d. f.	Mean Square	F-value	p-value
Between Groups	21.792	2	10.896	2.188	.116
Within Groups	702.208	141	4.980		
Total	724.000	143			

The p-value is .116. The result is not significant at  $p > .05$ .

- It is evident from Table 8 that results of Analysis of Variance (ANOVA) among Kabaddi Player with regards to Motivation were found statistically insignificant ( $P > .05$ ).
- It is evident from Table 9 that results of Analysis of Variance (ANOVA) among Kabaddi Players with regards to Mental Toughness were found statistically insignificant ( $P > .05$ ).

## 6. Hypothesis Testing

### 6.1 Main-hypotheses

It was hypothesized that there will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the variable Mental Toughness.

### 6.2 Sub-hypotheses

1. There will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the sub variable Reboundability.
2. There will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the sub variable Ability to Handle Pressure.
3. There will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the sub variable Concentration.
4. There will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the sub variable Confidence.
5. There will be significant differences among Guru Nanak Dev University, Punjabi University and Panjab University Kabaddi Players on the sub variable Motivation.
6. At this point in the research study, the researcher rejected the hypothesis of this study.

## 7. Conclusions

To conclude, it is significant to mention in relation to Reboundability, Concentration, Motivation, and Mental Toughness that results of Analysis of Variance (ANOVA)

among Kabaddi Players (i.e., Guru Nanak Dev University, Punjabi University and Panjab University) were found statistically insignificant ( $P > .05$ ).

Furthermore, in relation to Ability to Handle Pressure and Confidence that result of Analysis of Variance (ANOVA) among Kabaddi Players (i.e., Guru Nanak Dev University, Punjabi University and Panjab University) were found statistically significant ( $P < .05$ ).

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