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## A comparative study of mental toughness between aquatic and non-aquatic university level players

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### Abstract

(Brennan, 1998) described mental toughness as the ability to handle situations. It involves focusing, discipline, self-confidence, patience, persistence, accepting responsibility without whining or excuses, visualizing, tolerating pain and a positive approach. To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the championship held at Panjab University, Chandigarh. For this purpose, 80 university level players (40 Football and 40 Water polo) were selected as subjects. The selected subjects were between the age group of 18 to 25 years. In order to measure the level of mental toughness, Mental Toughness Questionnaire developed by (Allan Goldberg, 1998) [3] was used. The data was analyzed by applying Descriptive statistics i.e. Mean and Standard Deviation whereas to compare the mean difference, independent sample t-test was applied through statistical product and service solutions (SPSS) version 20.0. The level of significance was set at 0.05. The t-value considered was 1.99 at 78 degree of freedom to analyse the final results. Among all the sub-discipline of the mental toughness, significant difference was found on the sub-discipline confidence only whereas no significant difference was observed on the sub-discipline rebound ability, ability to handle pressure, concentration and motivation. There was significant difference found between the football and water polo players with regard to their overall mental toughness.

**Keywords:** Mental toughness, aquatic, non-aquatic, football, water polo, university level

### Introduction

**At an applied level, mental toughness is described (Brennan 1998, p.3) as**

*“The ability to handle situations. It’s somebody who doesn’t choke, doesn’t go into shock, and who can stand up for what he believes. It’s what someone has who handles pressures, distractions and people trying to break their concentration. It involves focusing, discipline, self-confidence, patience, persistence, accepting responsibility without whining or excuses, visualizing, tolerating pain and a positive approach”.*

Performance pressures faced by elite athletes have increased over the last few decades, due to higher quality competition and increased corporate expectations (Hong, 1997) [6]. These pressures have led to a greater interest in how to use the powers of the mind to achieve superior athletic performance. In attempting to reach their athletic potential, athletes have been complementing physical training with psychological training tools such as goal setting, visualisation and relaxation (Hardy, Jones & Gould, 1996) [4].

In the last decade or so, researchers have become increasingly interested in how psychological factors such as personality, group dynamics, and individual cognitions affect sporting performance (Thomas, Schlinker & Over, 1996) [15]. An emerging area of interest is the role of mental toughness. Sport psychologists (researchers and practitioners), coaches, sports commentators, sports fans and athletes acknowledge the importance of mental toughness in sporting performance (Hodge, 1994) [5]. In early work on the issue, Loehr (1986) [11] emphasized that athletes and coaches felt that at least 50% of success is due to psychological factors that reflect mental toughness. (Clough, Earle & Sewell, 2002) [2] estimated that as much as 75% of sport psychology first consultations with athletes and coaches involve requests for procedures to develop mental toughness. In research on the psychology-injury relationship, it was shown that tough-minded athletes are less likely to sustain an injury (Jackson *et al.*, 1978) [7]. Norris (1999) also emphasized the importance of mental toughness, based on extensive interviews with champion athletes. Learning about mental toughness,

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according to Norris, will help athletes get more out of practice, use failures as springboards to success and use mental skills to produce winning efforts. Mental toughness is a transferable life skill, which can be developed at any age and found in all levels of competition. This extremely valuable group of resources (e.g., confidence, discipline, focus) appears similar in all contexts, sports/events, and positions, and in both genders. Aquatic players are defined as those players who play/practice sports in water which includes the disciplines of swimming, diving, synchronized swimming, water polo and open water swimming whereas Non-aquatic players are those players who do not play/practice sports in water or sports which are not associated with water.

### Objectives of the study

1. To analyze the difference between aquatic and non-aquatic university level players with regard to their Rebound ability.
2. To analyze the difference between aquatic and non-aquatic university level players with regard to their ability to handle pressure.
3. To analyze the difference between aquatic and non-aquatic university level players with regard to their Concentration.
4. To analyze the difference between aquatic and non-aquatic university level players with regard to their Confidence.
5. To analyze the difference between aquatic and non-aquatic university level players with regard to their Motivation.
6. To analyze the difference between aquatic and non-aquatic university level players with regard to their overall Mental Toughness.

### Delimitations of the study

1. The study is delimited to the male aquatic players of water polo only.
2. The study is delimited to the male non-aquatic players of football only.
3. The study is delimited to the university level players.
4. The study is delimited to Mental Toughness.
5. The study is delimited to the age group of 18 to 25 years.

### Criterion measure/tool used

1. Mental Toughness was assessed by Mental Toughness Questionnaire (MTQ) developed by Allan Goldberg

(1998) [3].

### Scoring & interpretation

Mental Toughness Questionnaire developed by (Allan Goldberg, 1998) [3] is a standardized 30 item inventory with five sub-disciplines was used to measure mental toughness. The five fundamental areas of mental toughness includes: (a) Rebound ability (b) Ability to handle pressure (c) Concentration (d) Confidence (e) Motivation. Each dimension was measured by six questions, with 'True' or 'False' by a tick mark response. For sub-disciplines, a score of 6 in any one of the five sub-disciplines indicates a special strength/high in that area. A score of 5 indicates solid skill/average and score of 4 or less highlights weakness that needs to be addressed. For mental toughness, a score of 26-30 indicates strength/high in mental toughness, score of 23-25 indicates average/moderate in mental toughness and score of 22 or below indicates low/weak in mental toughness. Reliability of the scale was determined by Split half reliability coefficient which is 0.84 and the validity coefficient is 0.87 of the scale.

### Method & procedure

To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the championship held at Panjab University, Chandigarh. For this purpose, 80 university level players (40 Football and 40 Water polo) were selected as subjects. The selected subjects were between the age group of 18 to 25 years. In order to measure the level of mental toughness, Mental Toughness Questionnaire developed by (Allan Goldberg, 1998) [3] was used. The Data was analyzed and computed by applying Descriptive statistics i.e. Mean and Standard Deviation whereas to compare the mean difference, independent sample t-test was applied through statistical product and service solutions (SPSS) version 20.0. The level of significance was set at 0.05. The t-value considered was 1.99 at 78 degree of freedom to analyse the final results.

### Findings of the study

The table no.1 represents significance of mean difference between football and water polo university level players with regard to mental toughness and their sub-disciplines. The table deals with the variable, group, mean score, standard deviation score, mean difference, t- value and sig. (p) value whereas \* indicates significant difference.

**Table 1:** Significance of mean difference between football and water polo players with regard to their mental toughness

Variable	Group	N	Mean	Std. Deviation	M.D	t value	Sig.
Rebound ability	Football	40	2.72	1.64	.20	.65	.51
	Water polo	40	2.52	.98			
Ability to handle Pressure	Football	40	3.52	1.44	.00	.00	1.00
	Water polo	40	3.52	1.08			
Concentration	Football	40	3.62	1.23	.52	1.82	.07
	Water polo	40	3.10	1.33			
Confidence	Football	40	4.32	1.20	.70	2.54*	.01*
	Water polo	40	3.62	1.25			
Motivation	Football	40	4.17	1.08	.50	1.81	.07
	Water polo	40	3.67	1.36			
Overall Mental Toughness	Football	40	18.37	4.39	1.92	2.11*	.03*
	Water polo	40	16.45	3.72			

Level of significance was set at .05

t value at 78 degree of freedom was 1.99

The table no.1 represents significance of mean difference between football and water polo university level players with regard to mental toughness and their sub-disciplines. On the sub-discipline Rebound ability, football players registered 2.72 as mean score with standard deviation 1.64 whereas water polo players recorded 2.52 as mean score with standard deviation.98. The mean difference between football and water polo players obtained was.20 and the t-value/calculated value obtained was.65. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was lower than the tabulated value and revealed no significant difference between the football and water polo players with regard to their Rebound ability. The (sig.) p-value obtained was.51 which was higher than the.05 level of significance also states no significant difference between football and water polo players.

On the sub-discipline ability to handle pressure, football players registered 3.52 as mean score with standard deviation 1.44 whereas water polo players recorded 3.52 as mean score with standard deviation 1.08. The mean difference between football and water polo players obtained was.00 and the t-value/calculated value obtained was.00. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was lower than the tabulated value and revealed no significant difference between the football and water polo players with regard to their ability to handle pressure. The (sig.) p-value obtained was 1.00 which was higher than the.05 level of significance also states no significant difference between football and water polo players.

On the sub-discipline concentration, football players registered 3.62 as mean score with standard deviation 1.23 whereas water polo players recorded 3.10 as mean score with standard deviation 1.33. The mean difference between football and water polo players obtained was.52 and the t-value/calculated value obtained was 1.82. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was lower than the tabulated value and revealed no significant difference between the football and water polo players with regard to their concentration. The (sig.) p-value obtained was.07 which was higher than the.05 level of significance also states no significant difference between football and water polo players.

On the sub-discipline confidence, football players registered 4.32 as mean score with standard deviation 1.20 whereas water polo players recorded 3.62 as mean score with standard deviation 1.25. The mean difference between football and water polo players obtained was.70 and the t-value/calculated value obtained was 2.54. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was higher than the tabulated value and revealed significant difference between the football and water polo players with regard to their confidence. The (sig.) p-value obtained was.01 which was lower than the.05 level of significance also states significant difference between football and water polo players.

On the sub-discipline motivation, football players registered 4.17 as mean score with standard deviation 1.08 whereas water polo players recorded 3.67 as mean score with standard deviation 1.36. The mean difference between football and water polo players obtained was.50 and the t-value/calculated value obtained was 1.81. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was lower than the tabulated value and revealed no significant difference between the football and water polo players with regard to their motivation. The (sig.) p-value obtained was.07 which was higher than the.05 level of significance also states no significant difference between football and water polo players.

Overall on the variable mental toughness, football players registered 18.37 as mean score with standard deviation 4.39 whereas water polo players recorded 16.45 as mean score with standard deviation 3.72. The mean difference between football and water polo players obtained was 1.92 and the t-value/calculated value obtained was 2.11. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was higher than the tabulated value and revealed significant difference between the football and water polo players with regard to their mental toughness. The (sig.) p-value obtained was.03 which was lower than the.05 level of significance also states significant difference between football and water polo players.

The comparison of mean and standard deviation scores of football and water polo players has been represented graphically in figure 1.

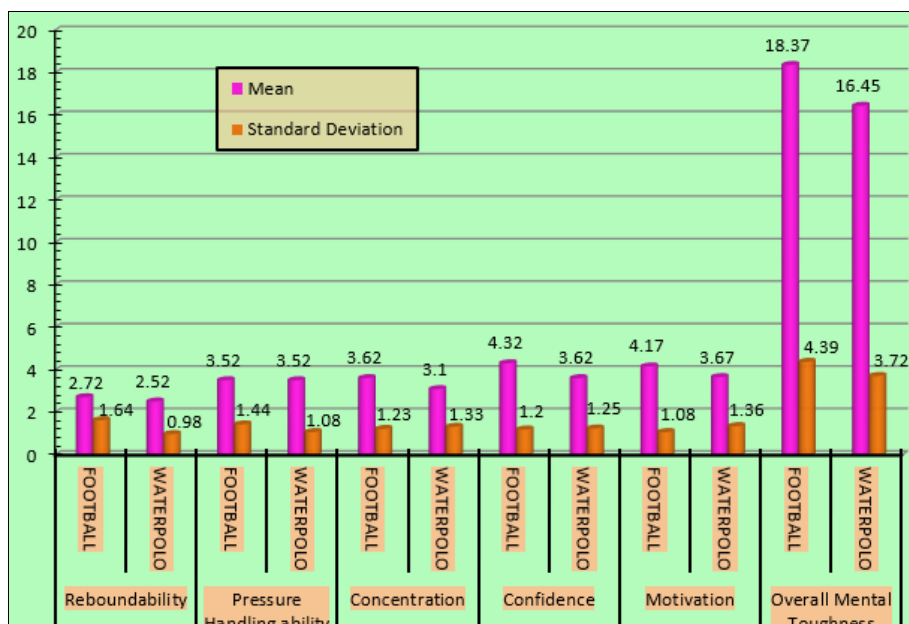


Fig 1: The graphical representation of football and water polo players with regard to their mental toughness

## Discussion

Among all the sub-discipline of the mental toughness, significant difference was found on the sub-discipline confidence only whereas no significant difference was observed on the sub-discipline Rebound ability, ability to handle pressure, concentration and motivation. There was significant difference found between the football and water polo players with regard to their overall mental toughness. The results of the present study revealed that football players registered higher mean score as compared to the mean score of water polo players. The results showed that football players have greater tendency of being mentally tough than the water polo players. The finding of this study is also supported by Pinto (2015) <sup>[14]</sup> compared mental toughness between individual game and team game players of Maharashtra. The results showed significant difference between team game players and individual game players in terms of rebound ability, pressure handling and overall mental toughness whereas there was no significant difference in terms of concentration, confidence and motivation. Another study is supported by Mandeep Kaur (2017) <sup>[9]</sup> which identified the mental toughness of five different contact sports were handball, football, wrestling, boxing and judo. The findings showed significant difference among the players of five different contact sports groups on the variable of Mental Toughness. (Patil & Pasodi, 2012) <sup>[13]</sup> found significant difference on performance of Male and Female Athletes at All India Inter-University Athletic Meet that female players had lower mental toughness with respect to male players. (Khan *et al.*, 2016) <sup>[10]</sup> compared the mental toughness of north zone Intervarsity male and female basketball players. The results showed significant difference between the female and male players on mental toughness. Analysis of the results indicated that female players scored lower on the mental toughness scale in comparison to male basketball players.

The probable reasons behind the results of the study might be some attributes as addressed by (Jones *et al.*, 2002) <sup>[8]</sup>. Specifically, these players were more consistent and superior at remaining determined, focused, confident and in control under pressure. (Jones *et al.*, 2002) <sup>[8]</sup> further identified 12 attributes that were considered crucial and fundamental to the makeup of mental toughness. These related to self-belief, desire and motivation, performance focus and lifestyle-related factors, dealing with pressure, anxiety, and pain/hardship associated with top-level performance. The attitude/mindset dimension is best described as containing attributes that characterize a general attitude that the ideal mentally tough performer possesses, whereas the three other dimensions (training, competition, post competition) related to characteristics of mental toughness at specified time phases. The attributes were important to mental toughness in each dimension. Performer must acquire the unshakable self-belief, attain their ultimate goal by prioritizing the long-term goal over any short-term gains, when training gets tough and unplanned situations occur during a sporting career, patience, discipline and self-control required for an athlete to reach his or her full potential, control over training preparation, focuses on using every aspect of the training environment to one's advantage. Performers push and challenge themselves to reach their physical boundaries, love the pressure of competition, adapting and coping characteristic that results in optimal performance regardless of distractions or changes, making the correct decisions when circumstances are ambiguous and pressurized, ability to channel anxiety in pressure situations, performers to have a killer instinct in

competition, which enables mentally tough performers to realize that the opportunity to snatch victory is presenting itself, highlights mentally tough performers can raise their performance level when required. Performers remain completely focused despite any distraction, mentally tough performers remain committed to their self-absorbed focus, regardless of external distractions, during certain competitions or games a mentally tough performer can remain focused on processes and not solely on outcomes, awareness and control of thoughts and feelings help mentally tough performers achieve the correct pre-performance state, aware of inappropriate thoughts and feelings helps them perform optimally, recognizing and rationalizing failure leads them to investigate why they failed and the reasons that caused the unsuccessful outcome, use failure to drive themselves to further success, understanding or knowledge of when to celebrate success and when to focus on the next challenge, know how to rationally handle success are the parameters on which the performance of a player strongly depends.

## Conclusion

On the basis of analysis of data, it may be concluded that among all the sub-discipline of the mental toughness, significant difference was found on the sub-discipline confidence only whereas no significant difference was observed on the sub-discipline Rebound ability, ability to handle pressure, concentration and motivation. There was significant difference found between the football and water polo players with regard to their overall mental toughness. The results of the present study revealed that football players registered higher mean score as compared to the mean score of water polo players. The results showed that football players have greater tendency of being mentally tough than the water polo players.

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