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A comparative study of mental toughness of university level rowing players

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Abstract

Mental toughness was defined as having the natural or developed psychological edge that enables you to, generally, cope better than your opponents with the many demands (competition, training, 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. The aim of present study is to compare the university level rowing players with regard to their mental toughness. To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the All India Inter-University rowing (Men & Women) championship 2017–2018 held at Panjab University, Chandigarh from 13th to 17th March, 2018. For this purpose, 80 university level rowing players (40 male and 40 female) 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) was used. To find out the difference in the level of mental toughness, 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. The result of the present study revealed significant difference between male and female university level rowing players with regard to their mental toughness.

Keywords: Mental toughness, rowing, crew, university level, players

Introduction

Rowing is the act of propelling a boat using the motion of oars in the water, displacing water, and propelling the boat forward. Rowing, often referred to as crew in the United States, is a sport which involves propelling a boat (racing shell) on water using oars. By pushing against the water with an oar, a force is generated to move the boat. The sport can be either recreational for enjoyment or fitness, or competitive, when athletes race against each other in boats. There are a number of different boat classes in which athletes compete, ranging from an individual shell (called a single scull) to an eight-person shell with coxswain (called a coxed eight). This may be done on a canal, river, lake, sea, or other large bodies of water. The sport requires strong core balance, physical strength, flexibility, and cardiovascular endurance. (FISA, 2017) [2].

Performance pressures faced by elite athletes have increased over the last few decades, due to higher quality competition and increased corporate expectations. These pressures have led to a greater interest in how to use the powers of the mind to achieve superior athletic performance. Researchers have become increasingly interested in how psychological factors such as personality, group dynamics, and individual cognitions affect sporting performance (Thomas, Schlinker and Over, 1996) [10]. 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 (Goldberg, 1998) [2]. Therefore, in accordance with Jones *et al.* (2002) [5], mental toughness was defined as follows: having the natural or developed psychological edge that enables you to, generally, cope better than your opponents with the many demands (competition, training, 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.

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In early work on the issue, (Loehr, 1986) [7] emphasized that athletes and coaches felt that at least 50% of success is due to psychological factors that reflect mental toughness. Clough, Earle and Sewell (2002) [1] estimated that as much as 75 % of sport psychology first consultations with athletes and coaches involve requests for procedures to develop mental toughness. Goldberg argued that a lack of mental toughness is the reason some athletes suffer from slumps, choke and experience runaway emotions; why they perform better in practice than in competition; and, why they underachieve. He claims that learning about mental toughness will assist coaches to be better motivators, develop winning teams, prepare teams for big games, develop winning concentration, snap losing streaks and end slumps, and teach athletes to stay cool in the clutch.

Objectives of the Study

1. To analyze the difference between male and female university level Rowing players with regard to their Rebound ability.
2. To analyze the difference between male and female university level Rowing players with regard to their ability to handle pressure.
3. To analyze the difference between male and female university level Rowing players with regard to their concentration.
4. To analyze the difference between male and female university level Rowing players with regard to their confidence.
5. To analyze the difference between male and female university level Rowing players with regard to their motivation.
6. To analyze the difference between male and female university level Rowing players with regard to their mental toughness.

Delimitations of the Study

1. The study is delimited to Rowing Players.
2. The study is delimited to all India inter university 2017-18.
3. The study is delimited to the age group of 18 to 25 years.
4. The study is delimited to male and female.
5. The study is delimited to mental toughness.

Criterion Measure/Tool Used

Mental Toughness was assessed by Mental Toughness Questionnaire (MTQ) developed by Allan Goldberg (1998) [2].

Scoring & Interpretation

Mental Toughness Questionnaire developed by (Allan Goldberg, 1998) [2] 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)

Reboundability (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. Section (a), questions 1-6 deal with Reboundability, Section (b), questions 7-12 deal with the ability to handle pressure, Section (c), questions 13-18 deal with concentration ability, Section (d), questions 19-24 deal with confidence and Section (e), questions 25-30 deal with motivation.

Interpretation: A score of 6 in any one of the five sections 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. 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.

Overall Score: 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.

Method & Procedure

To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the All India Inter-University rowing (Men & Women) championship 2017–2018 held at Panjab University, Chandigarh from 13th to 17th March, 2018. For this purpose, 80 university level rowing players (40 male and 40 female) 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) [2] was used. To find out the difference in the level of mental toughness, 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.

Statistical Technique

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 male and female university level rowing 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 where * indicates significant difference.

Table 1: Significance of Mean Difference between Male and Female Rowing Players With Regard To Their Mental Toughness

Variable	Group	N	Mean	Std. Deviation	M.D	t value	Sig.
Rebound ability	Male	40	3.12	1.62	1.22	3.54*	.001*
	Female	40	1.90	1.46			
Ability to handle Pressure	Male	40	3.55	1.10	.52	2.08*	.040*
	Female	40	3.02	1.14			
Concentration	Male	40	4.02	1.34	.35	1.23	.221
	Female	40	3.67	1.18			
Confidence	Male	40	3.95	1.35	.20	.66	.508
	Female	40	4.15	1.33			

Motivation	Male	40	4.57	1.19	.10	.422	.674
	Female	40	4.47	.90			
Mental Toughness	Male	40	19.22	4.48	2.0	2.38*	.020*
	Female	40	17.22	2.82			

- 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 male and female university level rowing players with regard to mental toughness and their sub-disciplines. On the sub-discipline Rebound ability, male rowing players registered 3.12 as mean score with standard deviation 1.62. Whereas female rowing players recorded 1.90 as mean score with standard deviation 1.46. The mean difference between male and female rowing players obtained was 1.22 and the t-value/calculated value obtained was 3.54. 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 male and female rowing players with regard to their Reboundability. The p-value (sig.) obtained was .001 which also states significant difference between male and female rowing players as the p-value (sig.) $p < .05$ was lower than the .05 level of significance. On the sub-discipline ability to handle pressure, male rowing players registered 3.55 as mean score with standard deviation 1.10. Whereas female rowing players recorded 3.02 as mean score with standard deviation 1.14. The mean difference between male and female rowing players obtained was .52 and the t-value/calculated value obtained was 2.08. 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 male and female rowing players with regard to their ability to handle pressure. The p-value (sig.) obtained was .040 which also states significant difference between male and female rowing players as the p-value (sig.) $p < .05$ was lower than the .05 level of significance.

On the sub-discipline concentration, male rowing players registered 4.02 as mean score with standard deviation 1.34. Whereas female rowing players recorded 3.67 as mean score with standard deviation 1.18. The mean difference between male and female rowing players obtained was .35 and the t-value/calculated value obtained was 1.23. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was less than the tabulated value and revealed no significant difference between the male and female rowing players with regard to their concentration. The p-value (sig.) obtained was .221 which also states no significant difference between male and female rowing players as the p-value (sig.) $p > .05$ was higher than the .05 level of significance.

On the sub-discipline confidence, male rowing players registered 3.95 as mean score with standard deviation 1.35. Whereas female rowing players recorded 4.15 as mean score with standard deviation 1.33. The mean difference between male and female rowing players obtained was .20 and the t-value/calculated value obtained was .66. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was less than the tabulated value and revealed no significant difference between the male and female rowing players with regard to their confidence. The p-value (sig.) obtained was .508 which also states no significant difference between male and female rowing players as the p-value (sig.) $p > .05$ was higher than the .05 level of significance.

On the sub-discipline motivation, male rowing players registered 4.57 as mean score with standard deviation 1.19. Whereas female rowing players recorded 4.47 as mean score with standard deviation 0.90. The mean difference between male and female rowing players obtained was .10 and the t-value/calculated value obtained was .422. The tabulated value was 1.99 at 78 degrees of freedom which showed that the calculated value was less than the tabulated value and revealed no significant difference between the male and female rowing players with regard to their motivation. The p-value (sig.) obtained was .674 which also states no significant difference between male and female rowing players as the p-value (sig.) $p > .05$ was higher than the .05 level of significance.

On the variable mental toughness, male rowing players registered 19.22 as mean score with standard deviation 4.48. Whereas female rowing players recorded 17.22 as mean score with standard deviation 2.82. The mean difference between male and female rowing players obtained was 2.0 and the t-value/calculated value obtained was 2.38. 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 male and female rowing players with regard to their mental toughness. The p-value (sig.) obtained was .020 which also states significant difference between male and female rowing players as the p-value (sig.) $p < .05$ was lower than the .05 level of significance. The comparison of mean and standard deviation scores of male and female rowing players has been represented graphically in figure 1.

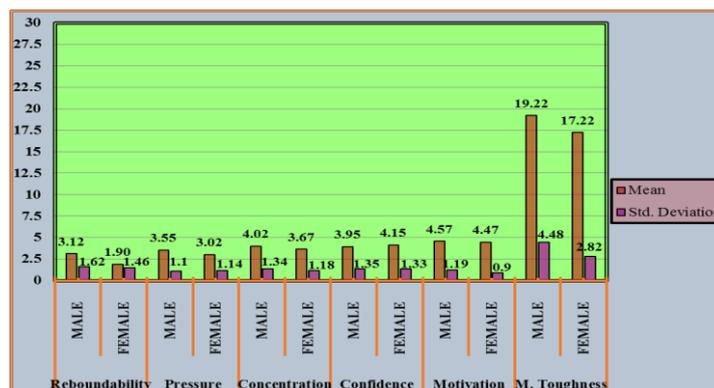


Fig 1: The Graphical Representation of Male and Female Rowing Players With Regard To Their Mental Toughness

Discussion

Among all the sub-discipline of the mental toughness, significant difference was found on the sub-discipline rebound ability and ability to handle pressure whereas no significant difference was observed on the sub-discipline concentration, confidence and motivation. There was significant difference found between the male and female rowing players with regard to their mental toughness. The results of the present study revealed that male rowing players registered higher mean score as compared to the mean score of female rowing players. The results showed that male rowing players have greater tendency of being mentally tough than the female rowing players. The finding of this study is also supported by (Patil and Pasodi, 2012) ^[9] 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. Another study conducted by (Khan *et al.*, 2016) ^[6] to compare the mental toughness of north zone Intervarsity male and female basketball players. Analysis of the results indicated that female players scored lower or less on the mental toughness scale in comparison to male basketball players. The results showed significant difference between the female and male players on mental toughness.

The probable reasons behind the results of the study might be some of the conceptual weaknesses by investigating mental toughness in elite performers, as addressed by Jones *et al.* (2002) ^[5]. Specifically, these athletes were more consistent and superior at remaining determined, focused, confident, and in control under pressure. Jones *et al.* 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 preperformance 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-disciplines of the mental toughness, significant difference was observed on the sub-discipline rebound ability and ability to handle pressure whereas no significant difference was observed on the sub-discipline concentration, confidence and motivation. There was significant difference observed between the male and female rowing players with regard to their mental toughness. The results of the present study revealed that male rowing players registered higher mean score as compared to the mean score of female rowing players. The results displayed that male rowing players have superior tendency to be mentally tough than the female rowing players.

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