



COMPARATIVE STUDY ON MENTAL TOUGHNESS AMONG THE ARCHERS AND SHOOTERS

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ABSTRACT

Objective of the study is to assess the mental toughness level of the archers and shooter and to compare the mental toughness level between the two sports athletes i.e., archers and shooters. **Methods:** For the purpose of the study twenty four (24) Archers (16 boys and 8 girls) and (24) Shooters (16 boys and 8 girls) were selected from Amritsar, Punjab and Imphal, Manipur were selected for the purpose of the study. The age of the athletes were ranged from 21 to 27 years. And to assess the mental toughness of the athletes of the selected sports i.e., Archery and Shooting the Mental Toughness Questionnaire by Dr. Alan Goldberg was used. The descriptive statistics such as mean, standard deviation, std. error mean etc. was used and for the comparison between the two sports on the factor of mental toughness the independent “t-test” was used. **Results:** The mean and standard deviation of the factors of mental toughness for shooters and archers are Rebound Ability (3.375 ± 1.209) and (4.042 ± 1.233), Handle Pressure (4.208 ± 1.285) and (3.833 ± 1.129), Concentration Ability (3.917 ± 1.176) and (4.167 ± 1.007), Level of Confidence (4.458 ± 1.179) and (2.917 ± 1.381) and Motivation (4.458 ± 0.779) and (4.792 ± 1.103) respectively. The “t-test” results shows that out of all the selected factors exists a significant difference in level of confidence ($p = .000$), as the obtain p value was less than 0.05 ($p < .05$). This implies that in spite of similarities in nature of sports events there exists differences, or there are special requirements for participation in these sports. The existence of similarities in between triathletes and cyclists is prevalent in rebound ability ($p = .065$), handle pressure ($p = .288$), concentration ability ($p = .433$) and motivation ($p = .233$), as their obtained p values were less than 0.05 ($p > .05$). **Conclusion:** the present study shows that archers are bit better in confidence level than shooters and rest of the factors of mental toughness are similar. It must be noted that the present research was solely a comparison in nature and that future studies would be needed to assess how athletes actually interpret behavior in competitive sports situations. And again additional research is needed to find out the real reason of similarities and difference exists in the present study.

Keywords: mental toughness, archers, shooters, reboundability, handle pressure, concentration ability, level of confidence and motivation.

INTRODUCTION

Previous research on psychological aspects and comparison of shooting and archery sport is rather limited. But some studies stated that stay motivated and setting a strong goals and targets is necessary for all the athletes and are contributing for prediction of performance for athletes (Wielinga et al., 2011). “Characteristics of great athletes: ruggedness, courage, intelligence, exuberance, buoyancies, emotional adjustment, optimism, conscientiousness, alertness, loyalty and respect for authority”. Successful athletes did indeed possess more positive mental health characteristics and fewer negative mental health characteristics than the general population. Successful athletes were above the waterline (population norm) on vigor, but below the surface on the more negative moods of tension, depression, anger, fatigue and confusion. But little evidence exists to support the existence of a given athletic personality type, a personality profile that separates elite athletes from the rest of athletes or specific personality types associated with specific activities (Gill, 1986). Mental practices are almost as effective as true physical practice and that doing both is more effective than either alone (Friel et al., 2013). Kleanthous (2013) state that it is impossible to be successful in any sport without the correct mental attitude. Bottoni et al. (2011) in his study state that there are several other variables that also take into account like mental ability, speed of abilities development, utilization of endogenous and exogenous resources, load and stress tolerance are considered and adopted

in criteria for selecting talent athletes. Galloway (2012) stated that factors such as course difficulty, training volume, age and gender, personality trait are widely accepted for determining success in most of the sports. Mental fitness as well as physical and technical aspects developed the attention of athletes. Factors such as motivation, will power, concentration, anxiety and determination have a decisive influence on developing profile for elite athletes (Wielinga et al., 2011).

The effectiveness of mental practice is moderated by the type of task, the retention interval between practice and performance, and the length or duration of the mental practice intervention (Driskell., 1994). An exercise program stressing the components of muscular endurance and muscular strength increases self-concept. Physical exercise has been linked to good mental health and positive self-concepts (James, 1982). Stoeber et al. (2009) state that perfectionist personal standards develop the goals setting and also help athletes to achieve their best possible performance. If the body is strong but the mind is weak, all physical gains are lost (Austin et al., 2012). Mental preparation has long been thought of as an important aspect of physical performance, especially in tasks requiring muscular strength (Biddle, 1985). Athletes seeking to improve performance can benefit from using imagery scripts that help them mentally rehearse a task before actually engaging in the task itself. With practice, individuals can increase their ability to use imagery, which can result in working smarter, rather than harder when strength training (Richter et al., 2012). Likewise

archery and shooting sports is also among one of the smart and mental sports and to be perfect in the sport one should have to be very tough in mental as well as physically, so the researcher wants to assess the mental toughness of the archers and shooters and to check whether both sports having similar characteristic of mental toughness or not.

METHODOLOGY

For the purpose of the study twenty four (24) Archers (16 boys and 8 girls) and (24) Shooters (16 boys and 8 girls) were selected from Amritsar, Punjab and Imphal, Manipur were selected for the purpose of the study. The age of the athletes were ranged from 21 to 27 years. And to assess the mental toughness of the athletes of the selected sports i.e., Archery and Shooting the Mental Toughness Questionnaire by Dr. Alan Goldberg was used. The descriptive statistics such as mean, standard deviation, std. error mean etc. was used and for the comparison between the two sports on the factor of mental toughness the independent “*t-test*” was used.

RESULTS

Table 1 : Descriptive statistics of archers and shooters on Mental Toughness

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Total Mental Toughness Scores	Archers	24	20.417	3.513	.717
	Shooters	24	19.750	3.274	.668
Rebound Ability	Archers	24	3.375	1.209	.247
	Shooters	24	4.042	1.233	.252
Handle Pressure	Archers	24	4.208	1.285	.262
	Shooters	24	3.833	1.129	.231
Concentration Ability	Archers	24	3.917	1.176	.240
	Shooters	24	4.167	1.007	.206
Level Of Confidence	Archers	24	4.458	1.179	.241
	Shooters	24	2.917	1.381	.282
Motivation	Archers	24	4.458	.779	.159
	Shooters	24	4.792	1.103	.225

The mean and standard deviation of the factors of mental toughness for shooters and archers are **Total Mental Toughness Scores** (20.417 ± 3.513) and (19.750 ± 3.274), **Rebound Ability** (3.375 ± 1.209) and (4.042 ± 1.233), **Handle Pressure** (4.208 ± 1.285) and (3.833 ± 1.129), **Concentration Ability** (3.917 ± 1.176) and (4.167 ± 1.007), **Level of Confidence** (4.458 ± 1.179) and (2.917 ± 1.381) and **Motivation** (4.458 ± 0.779) and (4.792 ± 1.103) respectively.

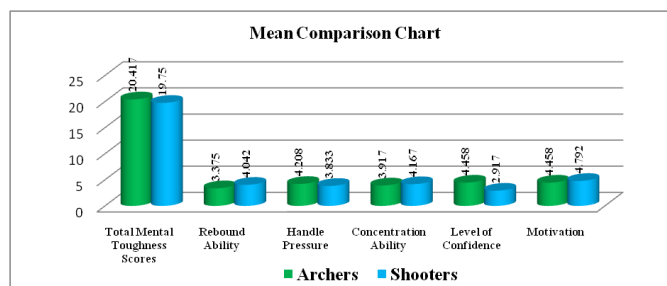
Table 2 : Comparison between archers and shooters on Mental Toughness by applying “t-test”

	df	Mean Difference	Std. Error Difference	t-value	p-value	Levene's Test for Equality of Variances	
						F-value	p-value
Total Mental Toughness Scores	46	0.67	0.98	0.68	.500	0.038	0.847
Rebound Ability	46	-0.67	0.35	-1.891	.065	0.004	0.947
Handle Pressure	46	0.38	0.35	1.074	.288	0.415	0.523
Concentration Ability	46	-0.25	0.32	-0.791	.433	1.063	0.308
Level of Confidence	46	1.54	0.37	4.161	.000*	1.236	0.272
Motivation	46	-0.33	0.28	-1.21	.233	2.918	0.094

* The mean difference is significant at the 0.05 level

This depicts that out of all the selected factors exists a significant difference in Level of Confidence ($p = .000$), as the obtain p value was less than 0.05 ($p < .05$). This implies that in spite of similarities in nature of sports events there exists differences, or there are special requirements for participation in these sports. The existence of similarities in between archers and shooters is prevalent in Total Mental Toughness Scores ($p = .500$), Rebound Ability ($p = .065$), Handle Pressure ($p = .288$), Concentration Ability ($p = .433$) and Motivation ($p = .233$), as their obtained p values were less than 0.05 ($p > .05$).

Figure 1 : The mean comparison chart between archers and triathletes on Mental Toughness



DISCUSSION OF FINDINGS

The differences between levels of athletic achievement are minimal or subtle and that other factors like physical attributes, technical skill, or different psychological factors predict achievement level more accurately (Golby et al., 2004 and Nicholls et al., 2009). The characteristics of champions or elite athletes have an ability to cope with and control anxiety, high confidence to his or her performance, mental toughness/resiliency, sport intelligence, an ability to focus and block distractions, competitiveness, having a hard-work ethic an ability to set and achieve goals, believe in coaches ability, high levels of dispositional hope, optimism, high level of adaptive perfectionism (Gould, 2002). To become an elite athlete’s need a persevering attitude to be the best, respect for their coach, rules of the game, and sportsmanship are more than

important elements in competition and training. Elite athletes feel comfortable dealing with other people. To be an elite player means having the ability to be communicative, competitive, conscientious, perfectionist, and resilient, among others (Lopez et al. 2012). Physical exercise has been linked to good mental health and positive self-concepts (James, 1982). Mental practice has a positive and significant effect on performance, and the effectiveness of mental practice is moderated by the type of task, the retention interval between practice and performance, and the length or duration of the mental practice intervention (Driskell., 1994). The types of tasks, the length or duration of loading and interval between the training and repetition effect on the mental strength of the athletes (Driskell et al., 1994). Nicholls et al. (2009) stated that athletes at higher achievement levels are normally mentally tough. And Cox (1998) also stated that the elite athletes are homogeneity of mental ability and toughness, because as aspiring elite athlete's moves up the athletic pyramid (at top), they became more alike in their psychological traits. This might be reason the archer and shooters are having similar in rebound ability, handle pressure, concentration ability and motivation. Knowing what to focus on is a skill that can be developed with time and experience. Athlete's encounters a variety of scenarios can store their responses in memory, improve their ability to take action and learn to return their focus to a relevant object more quickly (Friel et al., 2013). Bertollo et al. (2012) in their study showed that the physiological parameters like skin conductance and heart rate describe the physiological mechanisms associated with pistol shooters' performance. Shooting players had the fundamental attribution styles on tending to internal, unstable and controllable attribution when facing victory, and external unstable and controllable attribution when facing defeat, players of internal attribution style expressed lower anxiety level, higher confidence, higher E (extroversion) and lower N (neuroticism) than those of external attribution style (Xianming et al., 1998). The successful aiming strategy is mainly based on sustained rifle balancing. With regards to the brain slow potentials, the readiness potential shift does not specifically reflect the preparation for the trigger pull (Konttinen et al., 2000). The slow potentials are consistently related to the covert aspects of shooting performance, which lack an overt manifestation. At the practical level, this means that the slow potentials provide a tool for accessing information concerning the optimal balance between visual-spatial targeting and motor activity which can make a valuable contribution to the understanding of superior shooting performance (Konttinen et al., 1995). And Landers et al. (1986) state that 81% of the archers performance are predicted by variables like relative leg strength, reaction time, depth perception, endomorphy, imagery usage, confidence, and focus on past mistakes. So might be this reason the present study shows that archers are having better in level of confidence and obtain bit higher scores in total mental toughness scores than the shooters. There is lack of critical literature on area so the scholar can't bring to any conclusion. But the present study will help to give guideline in doing further studies by increasing sample size or by increasing psychological variables.

CONCLUSION

The present study shows that archers are bit better in

confidence level than shooters and rest of the factors of mental toughness are similar. It must be noted that the present research was solely a comparison in nature and that future studies would be needed to assess how athletes actually interpret behavior in competitive sports situations. And again additional research is needed to find out the real reason of similarities and difference exists in the present study.

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