



Analytical Study on Effect of Explosive with reference to physical fitness & game performance for Indo Bangla Football Players

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ABSTRACT

The research casts light on the explosive strength and corresponding impact in the context of the football players of India and Bangladesh. The study aims to find out the nature of divergence between the Explosive Strengths of the players of India and Bangladesh, examine the effect of Explosive Strength of the players on the game performance with respect to the teams of India and Bangladesh and make a comparative analysis between the countries on the extent of impact of explosive strength on game performances. For this purpose, data collected on the football teams of 15 colleges each from both India and Bangladesh. The average results of those teams, either win or loss from the last 10 matches has been recorded. Also, the average explosive strengths of all the players taken together for each team have been considered. Explosive Strength of the players are measured in terms of Standing Board Jump Test. The statistical tool used in this research for the purpose of comparing the fitness standards in terms of Explosive Strength between India and Bangladesh is Independent Sample t-test and a scatter diagram is plotted to visually interpret the nature of association along with the Pearson's correlation coefficient is used to bring out the correlation between the Average Explosive strength of the teams and their average performances. The study has found that the Mean Explosive Strength of Indian players come out to be 2.78, which is higher than that of Bangla Players. Also, the Explosive Strength of Indian Players shows higher variability than the Bangla Players with an S.D. of 0.36 and 0.21 respectively. And there is significant difference between the explosive strength of the players of two countries as per the t-test, which gives the t-value at 4.11, significant at both 5% and 1% level. The study concluded that Indian football players are slightly better off in terms of Explosive Strength as compared to Bangladesh player. The effect of explosive strength on game performance is found to be moderately positively correlated in case of Indian players. However, the correlation is very low in case of Bangladesh player, which is almost inconclusive. So, given the difference in the findings from the correlation analysis of both countries, it can be rendered that the explosive strength alone can't be the determining factor in winning the match. There are other variables to have impact in this regard. However, Explosive strength do affect the match result to some extent.

Keywords:

Explosive strength, Football player, Correlation, training, fitness factors, t-test, level of significance



1. INTRODUCTION

Physical Fitness is an essential for the good health as well as good state of mind. For a mind to be able to think and work properly, a fit body is necessarily required. Fitness is defined as the state of physical condition that improves work efficiency and channelise the vitality towards an array of productive tasks. Physical fitness is especially contextual for the youth to utilise their potential to the fuller extent. That's why, sports and physical exercise are advocated as the preliminary condition for a healthy living.

Games, sports associated with physical workout is an organized and systemic way of maintaining physical fitness. The importance of sports has been acknowledged from the historic time and its prominence has been growing since then. Apart from its primary objective of supporting health and fitness, Sports play a vital role in several other aspects like team building, leadership, cooperation, discipline, decision-making etc. It has a comprehensive impact encompassing both physical and socio-psychological development.

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Explosive Workout**

Explosive Jumping Alternating Lunges
3 sets - 12 reps - 30 sec rest

Jackknife Sit-up
3 sets - 10 reps - 45 sec rest

Donkey Kicks
60 reps

Bench Flutter Kicks
3 sets - 40 reps - 45 sec rest

Air Squats
50 reps

Double Crunches
100 reps

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Playing football requires a good physical condition and excellent energy level. Various scientific exercises and workouts are envisaged for training and warmup of football players to acclimatise their body to the game. Such practices are adopted worldwide as a prerequisite for the players. Among the South Asian nations, India and Bangladesh have been a hotspot for football. The game standards need a well focus to the workouts and training of the players of both countries to contribute to their performances on the field.

Explosive Strength with respect to football players pertain to the skill of achieving the peak jump height. Players need to undergo exercises such as Squat, Sit up, Crunches in order to increase the explosive strength.

2. REVIEW OF LITERATURE

Maurya D.C. et al. (2010) from a school-level study concluded that there is not a significant difference between Football players and athletes in terms of muscle strength. They viewed that muscle strength is not a prominent factor in determining the players' ability related to those sports. However, the importance of muscle strength in terms of other Sports has been left out of the scope of the study.

Mr. Tufan Mete and Dr. Atanu Das (2018) found that there was a significant difference between sprinters and jumpers in terms of explosive leg strength. Players of both fields also differ in terms of body composition and physical measurements. Their findings led to the conclusion that players engaged in different Sports require different degrees of fitness.

Deela K and Raj T. Rajender from their study conducted at a school in Hyderabad brought out that football players perform better in exercises like Pull up, Sit up, stretching etc, whereas the athletes are good at running. The pattern of divergence in terms of training and exercises of different sports' players are well acknowledged in their study.

Sumantamajhi & et al. found in their study that there is significant divergence between a soccer player and B.P.Ed Students in terms of various sports-specific skills like agility, speed and explosive strength. Students generally workouts for their associative development and do not focus on specific skills as per the soccer player.

Subramanya NS and Pasodi MS (2011) found that the training and exercise pattern of various sports among students are interrelated and their benefits have wider scope in terms of fitness and capacity building of the students. School-level students with a sort of generalised training tend to perform better in more than one sport.

Firdous Ahmad Bhat and Dr. Rakesh Pathak (2018) concluded from their study that the athlete students who have been undergoing rigorous workouts and exercises tend to have better fitness and physical standard as compared to non-athlete ordinary students. Also, the athlete students have a better endurance and tend to sustain longer on the ground.



3. RESEARCH GAP

The researches that have been discussed so far are focused at the difference in the training patterns of Football players and athletes. They have made an attempt to bring out the significant factors that mark the specific benefits that accrue to either of the sports in the context of school or college-level students. There have not been many studies on inter-country comparisons of exercises and workouts such as Explosive Strength, especially in the field of football. Also, the extent to which the Explosive Strength affects the game performances needs to be taken care of.

4. RELEVANCE OF THE STUDY

Football as a sport being a popular one in countries like India and Bangladesh, it is relevant to weigh out the skillset of players of both countries. The difference in skillset is highly likely to affect the game performances. Among other, Explosive Strength being the prominent one, demands due attention. Moreover, not just the comparative analysis of the Explosive strength between the players across border, it is also imperative to investigate how much impact the explosive strength can have on the game performance.

5. OBJECTIVES OF THE STUDY

1. To find out the nature of divergence between the Explosive Strengths of the players of India and Bangladesh.
2. To examine the effect of Explosive Strength of the players on the game performance with respect to the teams of India and Bangladesh.
3. To make a comparative analysis between the countries on the extent of impact of explosive strength on game performances.



6. RESEARCH METHODOLOGY

6.1 Sampling Framework

The study is based on data collected on the football teams of 15 colleges each from both India and Bangladesh. The average results of those teams, either win or loss from the last 10 matches has been recorded. Win is taken as +1 and loss as -1 for each match result.

Also, the average explosive strengths of all the players taken together for each team have been considered. Explosive Strength of the players are measured in terms of Standing Board Jump Test.

6.2 Research Framework

6.2.1 T-Test

The statistical tool used in this research for the purpose of comparing the fitness standards in terms of Explosive Strength between India and Bangladesh is Independent Sample t-test. The t-test is conducted using IBM SPSS software. The t-test seeks to analyse whether the means of different groups significantly differ from each other. The level of significance is set at 0.05.

For the purpose of this study, we have considered two hypotheses:

- Null Hypothesis (H₀): There is no difference between mean Explosive Strength of India and Bangladesh
- Alternative Hypothesis (H₁): Mean Explosive Strength of India and Bangladesh significantly differ from each other.

6.2.2 Correlation Analysis

The average match winning result of each team for both countries are mapped with the average explosive strength of the players of the same. Following this, a scatter diagram is plotted to visually interpret the nature of association and the Pearson's correlation coefficient is used to bring out the correlation between the same. The range of the correlation coefficient is taken as follows:

- r-value ranges from 0 to 3: Low / Nil Correlation
- r-value ranges from 3 to 6: Moderate Correlation
- r-value higher than 6: High / Strong Correlation



7. DATA ANALYSIS

7.1 Comparative Analysis of Explosive Strength

Group Statistics

	Players_Country	N	Mean	Std. Deviation	Std. Error Mean
Explosive_Strength	Indian_Players	15	2.7867	.36814	.09505
	Bangladesh_Players	15	2.3333	.21602	.05578

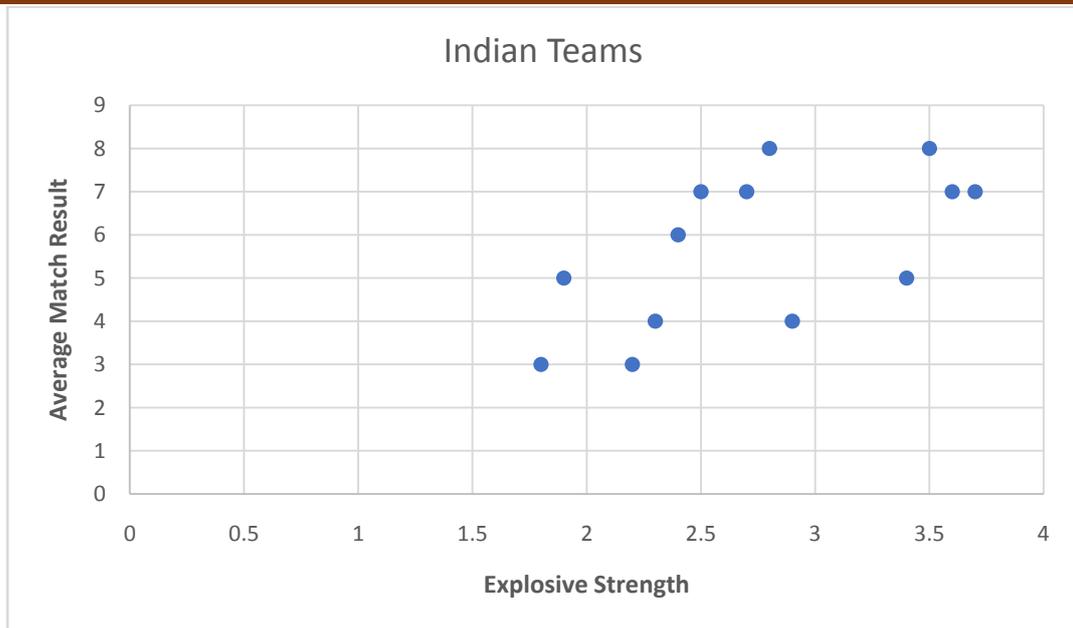
The Mean Explosive Strength of Indian players come out to be 2.78, which is higher than that of Bangla Players. Also, the Explosive Strength of Indian Players shows higher variability than the Bangla Players with an S.D. of 0.36 and 0.21 respectively.

Independent Samples Test

		Levene's Test for Equality of Variances		t	df	Sig. (2-tailed)
		F	Sig.			
Explosive_Strength	Equal variances assumed	5.497	.026	4.113	28	.000
	Equal variances not assumed			4.113	22.620	.000

The t-value stands at 4.11, which is significant at both 5% and 1% level given the corresponding p-value<0.01. So, here we reject the null and conclude that there is significant difference between the explosive strength of the players of two countries.

7.2 Effect of Explosive Strength on Game performance of Indian Players

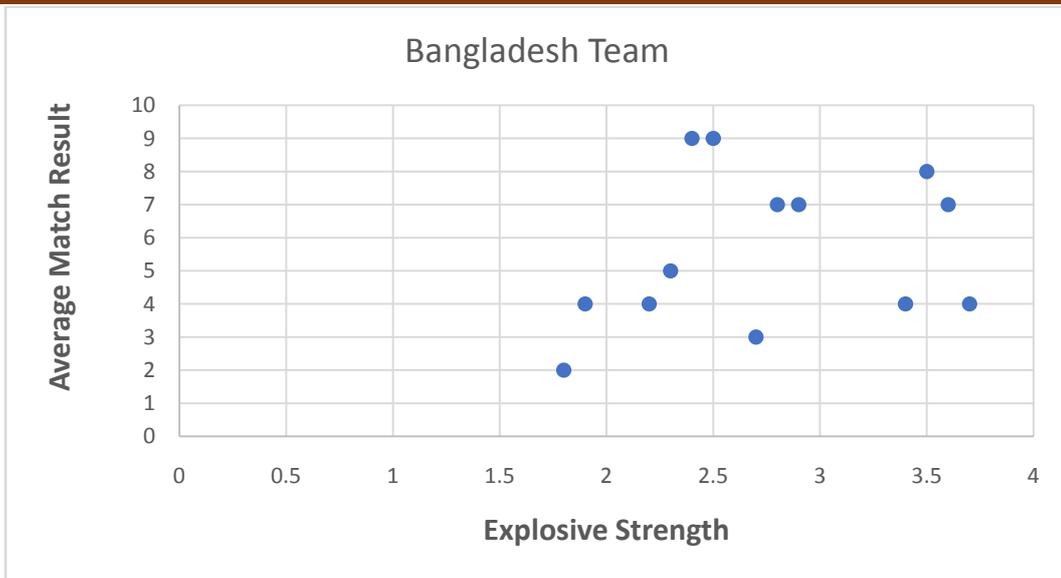


The scatter diagram depicts a positive degree of association between the Explosive Strength and Game performance for the India players. It shows that higher the Explosive strength, higher the likelihood of match winning.

	Average Explosive Strength	Average Match Result
Average Explosive Strength	1	
Average Match Result	0.605111969	1

The Positive association from the scatter diagram is substantiated by the Pearson’s Correlation Coefficient, which comes out to be 0.6, indicating a moderate positive correlation between the variables concerned.

7.2 Effect of Explosive Strength on Game performance of Bangladesh Players



The scatter diagram depicts an inconclusive nature of association between the Explosive Strength and Game performance for the Bangladesh players. It shows that higher the Explosive strength, likelihood of match winning is not certain.

	Average Explosive Strength	Average Match Result
Average Explosive Strength	1	
Average Match Result	0.263520526	1

The degree of association from the scatter diagram is better explained by the Pearson’s Correlation Coefficient, which comes out to be 0.26, which indicates a low or nil positive correlation between the variables concerned.

8. CONCLUSION

The comparative research on the explosive strength between two countries’ players brings out that Indian football players are slightly better off in terms of Explosive Strength as compared to Bangladesh player. The effect of explosive strength on game performance is found to be moderately positively correlated in case of Indian players. However, the correlation is very low in case of Bangladesh player, which is almost inconclusive. So, given the difference in



the findings from the correlation analysis of both countries, it can be rendered that the explosive strength alone can't be the determining factor in winning the match. There are other variables to have impact in this regard. However, Explosive strength do affect the match result to some extent.

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