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Correlative Study of Cardiovascular Factors & Anxiety Status Among Young Archers

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Abstract: *Archery is a game of pure focus and technique. As a sport, archery requires skills of precision, control, focus, repetition and determination. Therefore the aim of the study was to correlate cardiovascular factors and anxiety status among young archers prior to competition. The study was conducted in Jawaharlal Nehru Stadium (Sports Authority of India), Haryana Sports Complex and Yamuna Sports Complex. The target group of the study was young archers (15-24 years). On the basis of purposive sampling, 40 young archers were selected as a sample for assessment of heart rate, blood pressure and anxiety status. Anxiety Status of the target group was measuredwith the help of Sports Anxiety Scale 2. The anthropometric variables were measured by standardized techniques.OMRON Blood Pressure Monitor was used to collect the biochemical data from the subjects.The Score of the Sports Anxiety Scale-2 Questionnaire revealed a strong positive correlation of concentration score and somatic score (p>.01). Concentration score is strongly positively correlated with worry score (p>.01) and positively correlated with somatic score (p>.05). Somatic score is strongly positively correlated with worry score (p>.01) and positively correlated with concentration score (p>.05). The study concluded that there was a strong correlation between the concentration score, worry score and somatic score. On the other hand there was no correlation of anxiety score with heart rate and blood pressure.*

Key Words: *Sports anxiety, cardiovascular, archery, anthropometry, concentration level, heart rate*

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I. Introduction

Archery is the practice or skill of using a bow to shoot arrows. Archery is the practice or skill of using a bow to shoot arrows. As a sport, archery requires skills of precision, control, focus, repetition and determination.[1]Fit archers who do cardiovascular training have greater muscle endurance, enabling them to maintain the form of their shot throughout the competition. Cardiovascular training is 'physical conditioning that exercises the heart, lungs and associated blood vessels'. Incorporating a consistent cardio program into training program can benefits the archery performance in several ways. It is a natural way to decrease the stress and improve mood and to increase the strength and stability of the legs and core. It also helps the body to regulate the oxygen and to reduce the probability of the injury.[2]The recommended amount of cardio per week depends on each athlete's age, health and performance level.[3]Anxiety is a mild fear reaction toward some stimulus which is prevalent in even the best of athletes due to the immense pressures associated with professional sports. When someone is anxious, their body reacts in ways that can put an extra strain on their heart. The physical symptoms of anxiety can be especially damaging among individuals with existing cardiac disease.[4] Anxiety may have an association with the some heart disorders and cardiac risk factors like Rapid heart rate (tachycardia), increased blood pressure or Decreased heart rate variability. Anxiety may be positive motivating force or it may interfere with successful performance in sport events. The degree of anxiety also varies with a number of different conditions. Anxiety is likely to be greater in higher competitive sports than in relatively non- competitive sports, because in the competitive sports, participants are made upon them to succeed. As archery is the game of concentration and also a mental sport, it requires high levels of attention.[5]

II. Methodology

The present study was done to correlate the cardiovascular factors & anxiety among young archers before competition. The study was conducted in Jawaharlal Nehru Stadium (Sports Authority of India), Haryana Sports Complex and Yamuna Sports Complex. The target group of the study was young archers (15-24 years).On the basis of purposive sampling 40 young archers were selected. Inclusion criteria was, both males and female players aged between 15- 24 years were included and subjects willing to participate in the study. Exclusion criteria was males and females before 15 and after 24 years of age were excluded, those who were not willing to participate in the study, who were suffering from hypotension, hypertension, fever, cold, etc. were excluded. A standardized questionnaire named 'Sports Anxiety Scale- 2' was used to collect the anxiety informationfrom the subjects. Also OMRON Blood Pressure Monitor was used to collect the biochemical data from the subjects. Anthropometric measurements were done by using standardized tools, which include weight via digital scale. . The data was analysed by SPSS Version 24.

III. Results And Discussion

Table 1. Distribution of subjects on the basis of Demographic Profile

AGE	**N (%)**
15 – 18 years	11(27.5)
18 – 22 years	26(65)
22-24 years	3(7.5)
GENDER	**N (%)**
Male	34(85)
Female	6(15)
EDUCATION QUALIFICATION	**N (%)**
High School	2(5)
Intermediate	1(2.5)
Graduation	33(82.5)
Post –Graduation	4(10)

Table 1. Depicts the distribution of subjects on the basis of Age, in which 65% subjects were in 18-22 year old category while only 7.5% subjects were in 22-24 year old category. 85% subjects were males while 15% were females. Out of which, 82.5% of subjects were graduates.

Table 2. Mean and Standard Deviation of Anthropometric Variables

Anthropometric Variables	**Minimum**	**Maximum**	**M±SD**
Height	148	185.9	170.6±7.7
Weight	38	90	64.1±10.9
BMI	14.6	27.7	21.9±2.9

Table 2. Depicts means and standard deviation of Height is 170.6±7.7 with minimum 148 and maximum 185.9.Weight is 64.1±10.9 with minimum 38 and maximum 90.BMI is 21.9±2.9 with minimum 14.6 and maximum 27.7.

Table 3. Mean and Standard Deviation of Cardiovascular Factors**.**

Cardiovascular Factors	**Minimum**	**Maximum**	**M±SD**
Heart Rate	63.7	110.7	82.7±9.5
Systolic BP	97	161	123.8±13.6
Diastolic BP	54	102	77.4±8.7

Table 3. Depicts mean and standard deviation of Heart rate is 82.7±9.5 with minimum 63.7 and maximum 110.7.Systolic Blood Pressure is 123.8±13.6 with minimum 97 and maximum 161.Diastolic Blood Pressure is 77.4±8.7 with minimum 54 and maximum 102.

Table 4. Distribution of the subjects for correlation on the basis of Anxiety status.

Correlations Pearson Correlation			
	Worry Score	**Concentration Score**	**Somatic Score**
Worry Score	1	.536**	.484**
Concentration Score	.536**	1	.402*
Somatic Score	.484**	.402*	1
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 4. Depicts distribution of the subjects for correlation on the basis of Anxiety status. Worry score is strongly positively correlated with concentration score and somatic score (p>.01). Concentration score is strongly positively correlated with worry score (p>.01) and positively correlated with somatic score (p>.05). Somatic score is strongly positively correlated with worry score (p>.01) and positively correlated with concentration score (p>.05).

Table 5. Distribution of the subjects for correlation on the basis of Total Anxiety Score with Heart rate and Blood pressure.

Correlations Pearson Correlation				
	Total Anxiety Score	**Systolic Blood Pressure**	**Diastolic Blood Pressure**	**Heart Rate**
Total Anxiety Score	1	0.044	0.222	-0.102
Systolic Blood Pressure	0.044	1	.751**	0.099
Diastolic Blood Pressure	0.222	.751**	1	0.096
Heart Rate	-0.102	0.099	0.096	1
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 5. Depicts distribution of the subjects for correlation on the basis of Total Anxiety Score with Heart rate and Blood pressure. There was no correlation between the total anxiety score with heart rate and blood pressure.

VI. Conclusion

Worry score is strongly positively correlated with concentration score and somatic score (p>.01). Concentration score is strongly positively correlated with worry score (p>.01) and positively correlated with somatic score (p>.05). Somatic score is strongly positively correlated with worry score (p>.01) and positively correlated with concentration score (p>.05). There was no correlation between the total anxiety score with heart rate and blood pressure.

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[1]. The noun "toxophilite", meaning "a lover or devotee of archery, an archer" derives from Toxophilus by Roger Ascham — "imaginary proper name invented by Ascham, and hence title of his book (1545), intended to mean 'lover of the bow'." "toxophilite, n." Oxford English Dictionary. Second edition, 1989; online version November 2010 ; accessed 10 March 2011. Earlier version first published in New English Dictionary, 1913.
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