Long term playing of Badminton improves the Visual Reaction Time

Kalpesh R. Vidja1*, Mahesh K. Bhabhor2, Jitesh L. Sarvaiya3, Nehal S. Patel4, Varsha Joshi5

1,2 Assistant Professor, 3,4 Resident, 5 Professor, Physiology Department, M. P. Shah Govt. Medical College, Jamnagar (Gujarat)

INTRODUCTION
Now a day’s peoples are more involved in videogames, watching TV, movies and exploring internet. Sports like badminton, table tennis, volleyball, cricket, football, etc are played less with modernization. These sports not only make them physically healthy but would also improve their alertness, concentration. Visual reaction time is time required to response to visual stimuli. Reaction time acts as a reliable indicator of rate of processing of sensory stimuli by central nervous system and its execution.

Sports such as badminton, table tennis, tennis and squash have been classified as reaction sports. In badminton specifically, the incredible speed of the shuttle and the variable distance it travels between opponents allows a very minimal amount of time to react and execute shots. Badminton player has to give proper and quick response during the game. They have to strike the shuttle with racket in proper direction. Kramer AF, Hahn S & McAuley E, (2000) found that participants who completed a six month aerobic exercise program exhibited improvements in reaction time. Thus we devised the present study to compare visual reaction time in badminton players who playing badminton for different duration.

MATERIAL AND METHOD
The present study was conducted in 51 badminton players of age group of 14 to 40 years of male in Jamnagar district. The players were divided into three groups based on duration of playing badminton. Group 1 included 16 players those who playing since 1 year, group-2 included 17 players those who playing since more than 1 to less than or equal 3 years and group-3 included 18 players those who playing since more than 3 years. The research protocol was approved by Institutional Review Board.

ABSTRACT
BACKGROUND: Reaction time is the time duration between applications of a visual stimulus to onset of response. The present study was conducted to measure simple visual reaction time in 51 Badminton players. Material Method: The Simple visual reaction time was measured by the direct RT computerized software in Badminton players. During the visual reaction time testing, visual stimuli were given for eighteen times and average reaction time was taken as the final reaction time. Result: In present study we observed that visual reaction time is shorter in Badminton players who are playing Badminton for longer duration than who are playing Badminton for short duration. It was also found that continuing playing of Badminton improves reaction time. Conclusion: Our study concluded that playing of Badminton for longer time is beneficial to eye-hand reaction time, concentration and alertness.

Key words: Badminton Players, Visual Reaction Time, Duration of playing Badminton
Long term playing of Badminton improves the Visual Reaction Time

Int J Res Med. 2015; 4(1);90-92

ethical committee and informed consent obtained from each subject prior to inclusion in the study. Personal history and medical history of all three groups were collected in pre-designed proforma. Medical history was taken to rule out any medical or surgical disease which would affect reaction time of individual. After taking consent, simple visual Reaction time was measured in millisecond (ms) by Direct RT computerized software. It was carried out with adequate light and in silent atmosphere. Visual reaction time was measured where subject has to respond to different colour stimulus appearing on computer screen by pressing spacebar key on keyboard. Subjects were given practice session before measuring the actual reaction time. Data was collected and was statistically analyzed by using T-test(Unpaired) by SPSS version 20 software . Reaction time was reported as mean ± SD. The level of significance between group 1,2 and 3 was taken if p value was less than 0.05.

RESULT

Table: 1 Show General characteristic of badminton players(all values in Mean ± SD)

<table>
<thead>
<tr>
<th>Number</th>
<th>Age (years)</th>
<th>Height (cm)</th>
<th>Weight (kg)</th>
<th>BMI (Kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>26.25±7.33</td>
<td>168.19±4.79</td>
<td>66.75±9.86</td>
<td>23.69±3.28</td>
</tr>
</tbody>
</table>

Table no.1 shows the mean age of badminton players was 26.25 years. Mean height of badminton players 168.19 cm. Mean weight of badminton players 66.75 Kg. Mean BMI of badminton players 23.69 Kg/m².

Table:2 show effect of duration of playing badminton on visual reaction time in badminton players:

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of Players</th>
<th>Visual Reaction time (ms) values in mean±SD</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>16</td>
<td>282.06±15.62</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Group 2</td>
<td>17</td>
<td>269.29±16.85</td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>18</td>
<td>262.27±14.10</td>
<td></td>
</tr>
</tbody>
</table>

Table no.2 shows simple visual reaction time in group-1 (282.06±15.62ms), group-2 (269.29±16.85ms) and group-3 (262.27±14.10ms). Visual reaction time was significant fasterin group-3 than group-1 and group-2.

Graph showing comparison of visual reaction time in different groups

DISCUSSION

In present study there are difference of visual reaction time between group 1, 2 and 3. Visual reaction time is shorter in group-3 than group-2 and group-1. But in group-3 visual reaction time is significantly shorter than group-1. Reaction time is an important component of motor movements. It is one of the important methods to study a person’s central information processing speed and fast coordinated peripheral movement response. It has been observed that exercise and sports beneficial to mental health. Researchers have also established that exercise and sports results in a mild enhancement of cognitive function. There are several possible mechanisms which provide primary support for different hypothesis. Different direct and indirect mechanisms could explain relationship between exercise and mental processing. Perhaps the most popular mechanism is the idea that those individuals who exercise at moderate to intense levels have higher rates of cerebral blood flow. This increased amount of blood flow in the brain results in improvements in cognitive functioning due to increased supply of necessary nutrients, such as oxygen and glucose. Result from present study are similar with finding of studied by Kramer et al,(2000) found that participants who completed a six month aerobic exercise program exhibited improvements in reaction time. Hascelik Basgoze, O., Turker, K & Norman, S. (1989) determined the visual reaction times of volleyball players before a training program to be 214.55 ms and and after a training program to be 191.3 ms. Mamoglu O, Agaoglu SA, &Agaoglu YS (2000) found the visual reaction
Long term playing of Badminton improves the Visual Reaction Time

times of professional soccer players to be 175.0 ± 14.0 ms and of part-time soccer players to be 177.0 ± 18.0 ms. Fontani, G., L. Lodi & A. Felici,(2006) 13 showed that in karate, more experienced practitioners had shorter reaction time. Badminton is a sport that depends on finely crafted movements that occur very quickly and a precise execution of shots. Badminton player has to give a good attention to the stimuli and has to be alert to give a proper motor response. The quicker reaction time in badminton players is due to improved concentration, alertness, better muscular co-ordination and improved performance in speed and accuracy task. Exercise increased activation of central nervous system and could facilitate cognitive processes.

CONCLUSION
Our study concluded that playing of badminton for longer duration has shorter visual reaction time as compared to short duration of playing. These results support the view that playing of badminton is beneficial to eye-hand reaction time and improve the concentration, alertness and coordination.

ACKNOWLEDGEMENTS
We are thankful to Jamnagar municipal corporation sports complex, officers club Jamnagar for their co-operation in this study.

Conflict of interest: None declared.

REFERENCES