



# International Journal of Physiotherapy Research and Clinical Practice

## Original Article

## Effect of Mobile Screen Exposure on Reaction Time in Basket Ball Players

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### ARTICLE INFO

#### Article history:

Received 08.01.2024

Accepted 13.01.2024

Published 22.03.2024

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[https://doi.org/](https://doi.org/10.54839/ijprcp.v3i1.24.1)

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### ABSTRACT

As per the studies the college going students use their phone on an average of 6-7 hours a day. The screen time affects the overall health of the students. The study aims to determine if increased screen time affects reaction time in basketball players. Data was collected from the team of basketball players, measuring their daily screen usage and reaction time using the Ruler Drop Test. Their screen time duration is recorded and correlated with reaction time test results. Findings suggest a statistically significant association between prolonged screen exposure and delayed reaction times, highlighting the potential impact of digital device usage on reaction to the quick challenges faced among basketball players. These results emphasize the need for balanced screen usage and raise awareness about the potential consequences of excessive screen time on reaction time. The higher duration of screen exposure to the mobile lower is the reaction time in basketball players.

**Keywords:** Reaction Time; Basketball Players; Ruler Drop Test

## 1 INTRODUCTION

Smartphones, PC, tablets, and TV have become integral parts of our lives. Smartphone in particular is the lifeline of everyone, regardless of their age group. The evolution of the smartphone has made it useful as the pocket PC. India has 1166.05 million active data users in the wireless or wired format in 2022, as per press release of TRAI (Telecom regulatory authority of INDIA)<sup>1</sup>. A troubling increase in the time spent in screen-based behaviours has been observed in young people<sup>2</sup>. Reaction time (RT) is that the time interval between the applying of a stimulation and also the appearance of acceptable voluntary response by a subject i.e. it's the activity of however long it takes for brain and nerves to react to a stimulation<sup>3</sup>. It needs an intact sensory system, cognitive processing unit, and motor performance. It reflects the speed of the flow of neuronal and physiological, cognitive, and information processes which are created by the action of stimulation on the person's sensory system. Reaction time is a pre-requisite of any sports player. A short reaction time is an indicative of swift movements and attentiveness on field of the player<sup>4</sup>. The studies done on

the reaction time have shown that the Ruler drop test is the on-field test used in most of the outdoor games. The studies have shown that the screen exposure of the normal students have shown to have impact on the overall health. This study is intended to find whether there is any correlation existing between the screen time exposure and reaction time in basketball players.

## 2 METHODOLOGY

### • Inclusion Criteria

- Active Male Basket ball players
- Age between 20 to 25 years
- Electronic gadget users

### • Exclusion criteria

- Any recent hospitalisation
- On medications for neurological problems
- Not Playing Basket ball from 3 days or more

## 2.1 Cognitive impairments

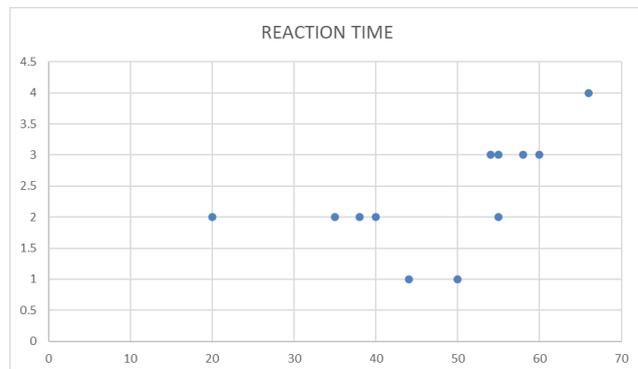
13 basket ball players were included in the study who met the inclusion criteria, the time duration of the mobile, laptop and tv screen time exposure were extracted from the players and was documented in minutes from their mobile usage history for each day. The reaction time of the basket ball players were evaluated using the ruler drop test and the data was recorded in CMS.

## 2.2 Ruler drop test

The ruler was held vertical with the zero marking on the bottom of the ruler which is placed just above to the palm with forearm in mid prone position, the players were instructed to catch the ruler as early as possible when it is dropped down without intimation. The marking which lies at the level of index finger after catching the ruler was considered and noted. The data obtained was further analysed to find whether screen time exposure duration has any correlation with reaction time in the players.

## 3 RESULTS

The analysis of data using pearsons correlation showed that the there was a correlation between the screen time exposure and reaction time ( $r = 0.580891$ ) in the basket ball players. As the exposure time of screen increased, there was increase in the reaction time in basket ball players.



**Fig. 1: Pearsons Correlation Between the Number Of Hours Of Mobile Use To Reaction Time Shows Positive Correlation ( $r=0.580891$ )**

## 4 DISCUSSION

From the present study it shows that the basket ball players who had exposure to the mobile use had significant decrease in the reaction time. Reaction time is very essential in the outdoor games involving the quick responses for the successful game play. The study done by Ashuthosh et al shows that there is a relation ship existing between screen exposure and reaction time. Even with physical activity in the basket ball players the reaction time was reduced due to the Overuse of smartphone is increasing, resulting in a great deal of physical and psychological effects. It is found to negatively impact health and increase the risk of stress, depression, and anxiety. In addition to this, sleep disorders, restlessness, and fatigue are also being reported which can lead to cognitive impairment<sup>1,2</sup>.

## 5 CONCLUSION

It is concluded that more exposure to screens through electronic gadgets could lead to decrease in the reaction time in basketball players.

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