

## Visual Response Time & Visuospatial Intelligence Scores of Athletes & Nonathletes

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### Abstract

*Aim:* To compare sports-related visual abilities - hand-eye response time and visuospatial intelligence of athletes to nonathletes. *Materials & Methods:* Differences in sports-related visual abilities such as hand-eye response time and visuospatial intelligence between athletes and nonathletes were studied in 30 boys (age-14.9±1.8 years) and 30 girls (age-14.3±1.6 years) school students. Visuospatial intelligence was assessed with Cattell's Culture Fair Intelligence Test. A random stimulus presentation and response recording was used for eye-hand response time with the help of audio-visual response time equipment. *Results:* Athletes had statistically significantly ( $p<0.001$ ) lower eye-hand visual response time (i.e. the faster) and higher visuospatial intelligence compared to nonathletes. There were no statistical significant sex differences. A negative correlation was observed between the number of years of doing sports and eye-hand visual response time ( $r=-0.78$ ,  $p<0.001$ ) and a positive correlation with visuospatial intelligence ( $r=0.69$ ,  $p<0.001$ ). *Conclusion:* The results of the present study support the view that participation in different sport activities is beneficial to both eye-hand response time and visuospatial intelligence. Keeping in view the results of the present study, we can recommend more sport activities for higher academic achievement in primary, middle, high and senior secondary school students.

**Key Words:** Response time, Visuospatial Intelligence, Athletes

### Introduction

Visual performances are found to be significantly better in athletes as compared to nonathletes for certain visual skills such as visual reaction time and peripheral awareness. It has also been reported that the dynamic visual perception of athletes is superior to that of nonathletes and athletes are reported to be quicker than nonathletes (Ishigaki & Miyao, 1993). It has also been revealed that exercise shortens motor time (Davranche et al, 2006). In a recent study, differences between athletes and the sedentary subjects in terms of visual evoked potentials (VEP) have been reported; acute and habitual exercise affect the visual evoked potentials responses

independently of the body temperature and other physiological variables (Ozmerdivenli et al, 2005). They suggested that small sized pre exercise P100 amplitudes in the athletes can be attributed to the effect of rapid visual-activity challenging sports on the central nervous system. Eysenck (1986) has re-emphasized the intelligence concept and pointed out the significance of reaction time as a basic measure of intelligence: the speed of information processing is a basic property of biological intelligence (the "speed hypothesis of intelligence"). Accordingly, the nonverbal IQ has been found to be directly correlated with hand