Visual Performance in Senior Tennis

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INTRODUCTION

• For over a century, the Snellen Eye Chart has been used to measure vision in stationary and fixed situations. This assessment tool commonly used in various doctors' offices measures an individual's ability to make out fine details and, therefore, recognize letters of decreasing size that are presented on a chart viewed from a distance.

• This method alone does not seem to be an effective predictor of visual performance for sport. More recently, contrast sensitivity function (CSF) has emerged as an important predictor in the assessment of visual performance. CSF is the degree to which an image can become faded before it is no longer distinguishable to the viewer. For example, if a person views a set of stripes, he or she is naturally more likely to be able to distinguish lines that are moderately wide and spaced apart. If a set of black lines are laid too thin and close to each other, we perceive a grey area instead of being able to make out the individual lines.

• Nearly one hundred investigations have been published involving CSF, yet few studies have been conducted involving CSF and its role in vision for sport and none have considered the relationships between CFS and pupil size. , plan for the next point, and increase consistency across various match situations.

PURPOSE

The purpose of this study was to determine whether there were performance differences in contrast sensitivity function (CSF), pupil size, and speed of recognition between male and female senior tennis players.

SAMPLE

Participants for this study were 30 (15 males and 15 females) tennis players aged 40 to 45 years. All players were members of USTA Senior teams and were selected through a screening process because of certain vision criteria such as 20/20 vision in both eyes, same eye near and far dominance, and acceptable three-dimensional vision, and color perception.

METHODS

To measure the participants' CSF, the players viewed a screen of various striped squares with decreasing thickness and increasing spacing that were either tilted to the left, to the right, or straight up. The players were instructed to identify the last square in which lines were visible and the direction in which they were tilted. The pupil size and speed of recognition of each player were also tested.

WHAT DID THE STUDY FIND?

• There were no significant performance differences between male and female senior tennis players in contrast sensitivity function (CSF) or speed of recognition.

• Male players had significantly larger size pupils than the female participants.

• Overall, the CSF levels of the male and female players fell within the normal range for individuals of their age.

COACHING IMPLICATIONS

•The findings of the study suggest that males and female senior tennis players do not differ in several critical areas of their visual performance (i.e., contrast sensitivity function and speed of recognition).

•Therefore, it does not seem likely that performance differences between males and females from similar populations are attributable to these vision criteria.

•One difference that was found between the two groups was that the male players tended to have larger pupil sizes.

•This tendency for larger pupils may predispose senior male players to have less visual sharpness than their female counterparts and may be more likely to experience performance problems due to this visual factor than their female counterparts.

REFERENCES/ RESOURCES

Ginsburg, A. (1983). Contrast sensitivity: Relating visual capability to performance. *USAF Medical Service Digest, 34*, 15-19.

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