

# Vestibulo-oculomotor Function Following a Competitive Season Versus a Non-competitive Season in Collegiate Football Players

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## Introduction

### Background

- Football athletes experience a high number of head impacts during competitive play that do not cause immediate observable signs or symptoms.<sup>1,2,3</sup>
- Research shows that exposure to repeated subconcussive impacts has a negative effect on the vestibulo-oculomotor (V-O) system and can result in long term neurologic dysfunction.<sup>3,4,5</sup>
- Little is known about the ability of the V-O system to recover if an athlete is given an extended time away from subconcussive impacts.<sup>3</sup>

## Purpose

- To investigate the difference in V-O function following a non-competitive (due to COVID-19) vs. a competitive season in cleared-to-play football players.

## Methods

### Participants

- 32 Division II football players from Concordia University, St. Paul ages 19-23.
- Data was collected in 2021 following a non-competitive season and in 2022 following a competitive season.

### V-O Tests

- Dynamic Visual Acuity (DVA)
- Near-Point Convergence (NPC)

## Results

- No statistically significant differences in V-O test results were found between the non-competitive and competitive season.
- Nearly 60% of the athletes had at least one positive V-O test after the competitive season.

## Conclusion

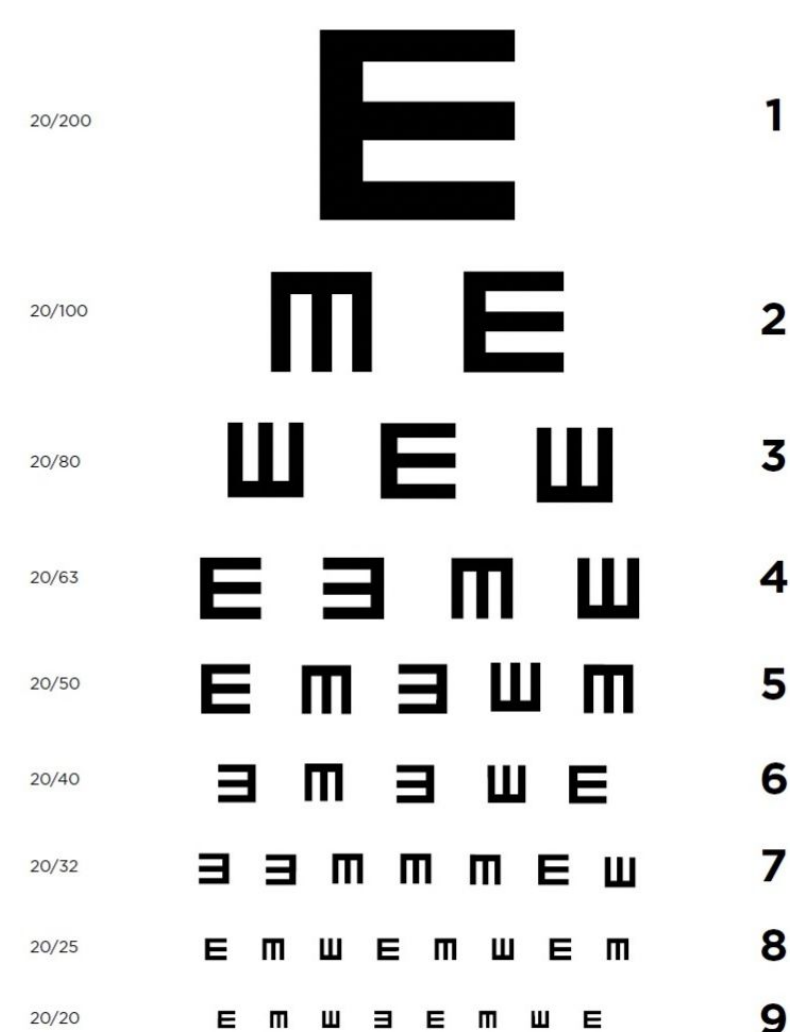
- Time away from subconcussive impacts due to a non-competitive season does not appear to have significantly influenced V-O function in collegiate football players.
- However, of concern is the large number of cleared-to-play athletes testing positive in at least one assessment tool.

## Clinical Relevance

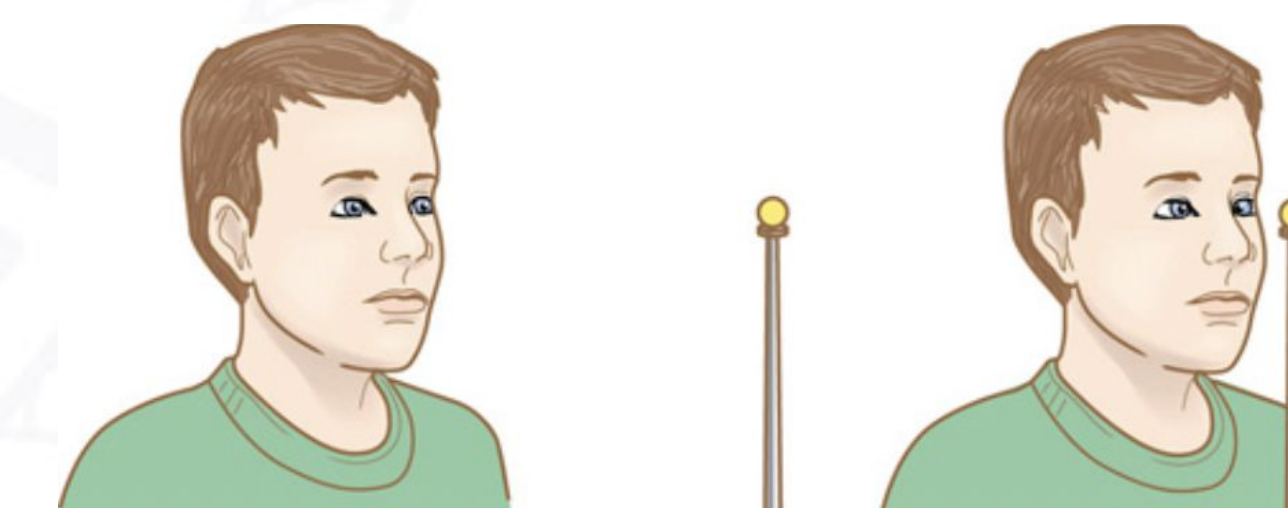
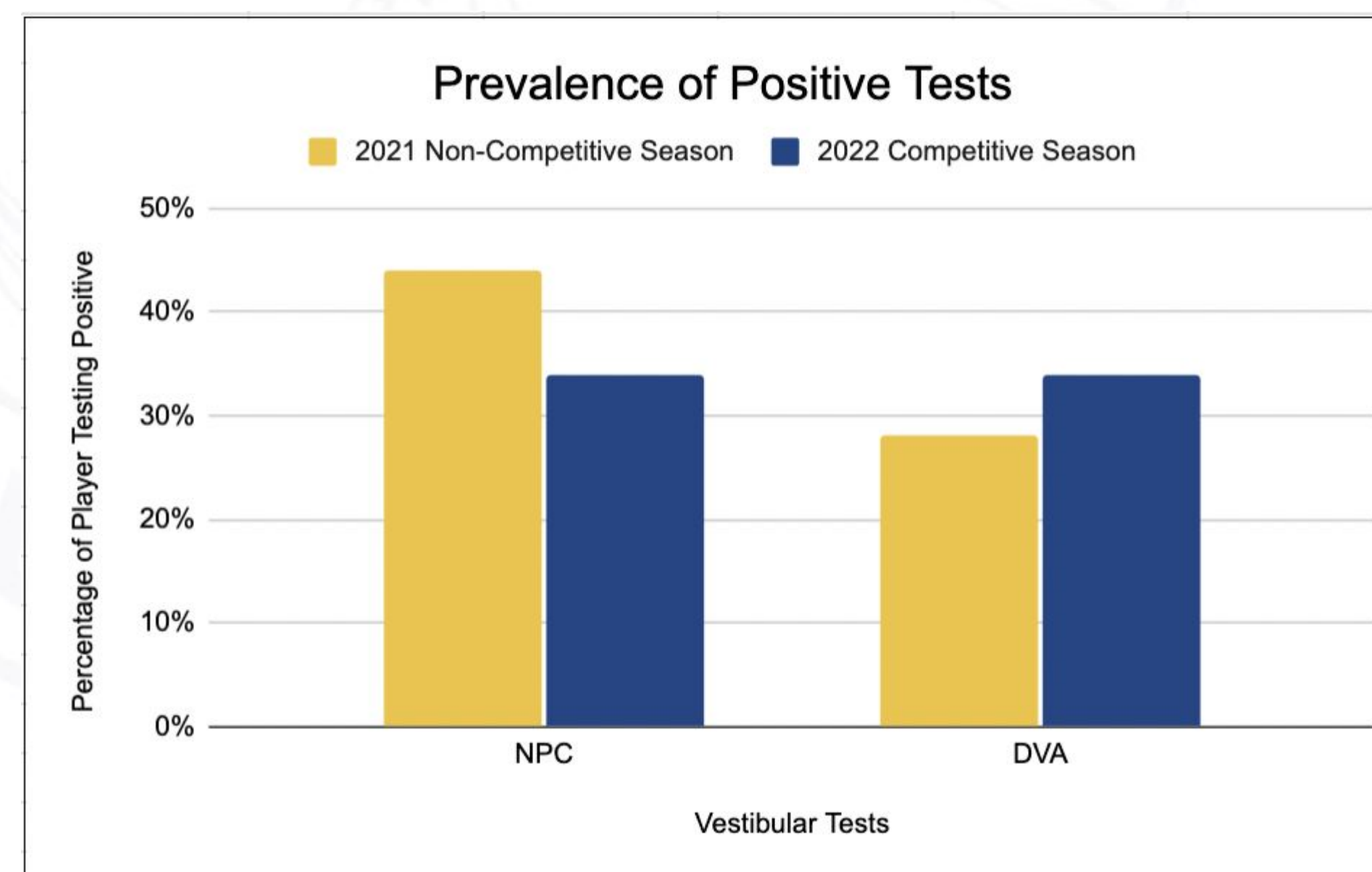
- The vestibular system has the opportunity to recover, yet we are still unable to draw firm conclusions about the amount of time away from head impacts that is necessary for full recovery<sup>2,3,5</sup>
- For many of our participants, a single season away from head impacts was not enough time to recover
- It is recommended that there be further investigation into time away from contact sports and return-to-play protocols in season.

## References

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DVA Tumbling E Chart



NPC Testing Procedure