

Near Point Convergence Predicting Students' Return to Learning



Oculomotor Testing Information

Purpose:

To determine if near point convergence (NPC) can clinically predict cognitive tolerance in pediatric patients.

Methods:

- **n= 122 patients** ages 10-18 years old
- 268 visits total
- Visited a concussion clinic between 22Nov2017- 27Feb2019
- NPC measured by ultrasonic device



Cognitive Tolerance Zones:

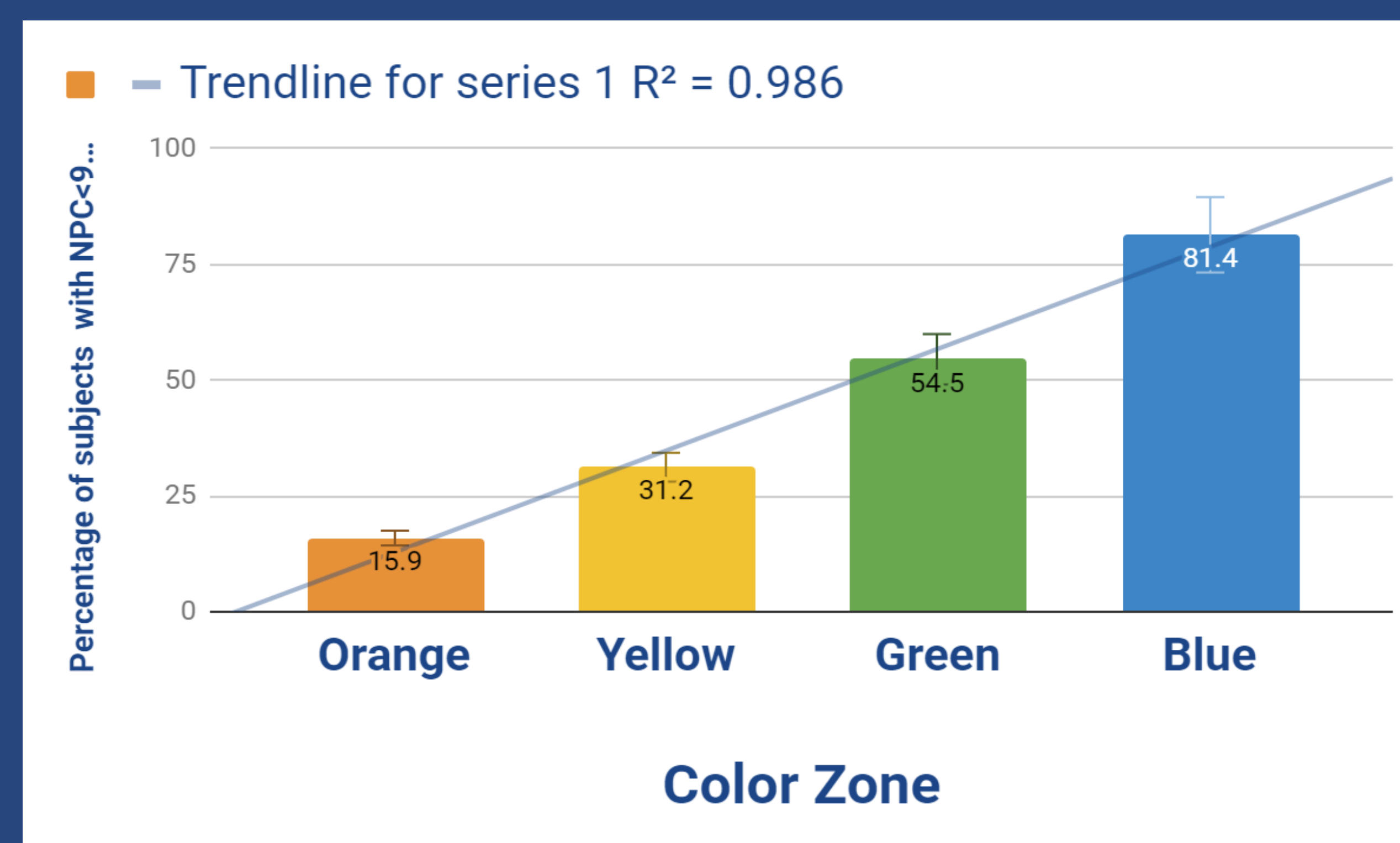
- Red:** No academics
- Orange:** Half time at school or less
- Yellow:** Half time at school or more
- Green:** Full time with accommodations
- Blue:** Full time with no restrictions

Excluded:

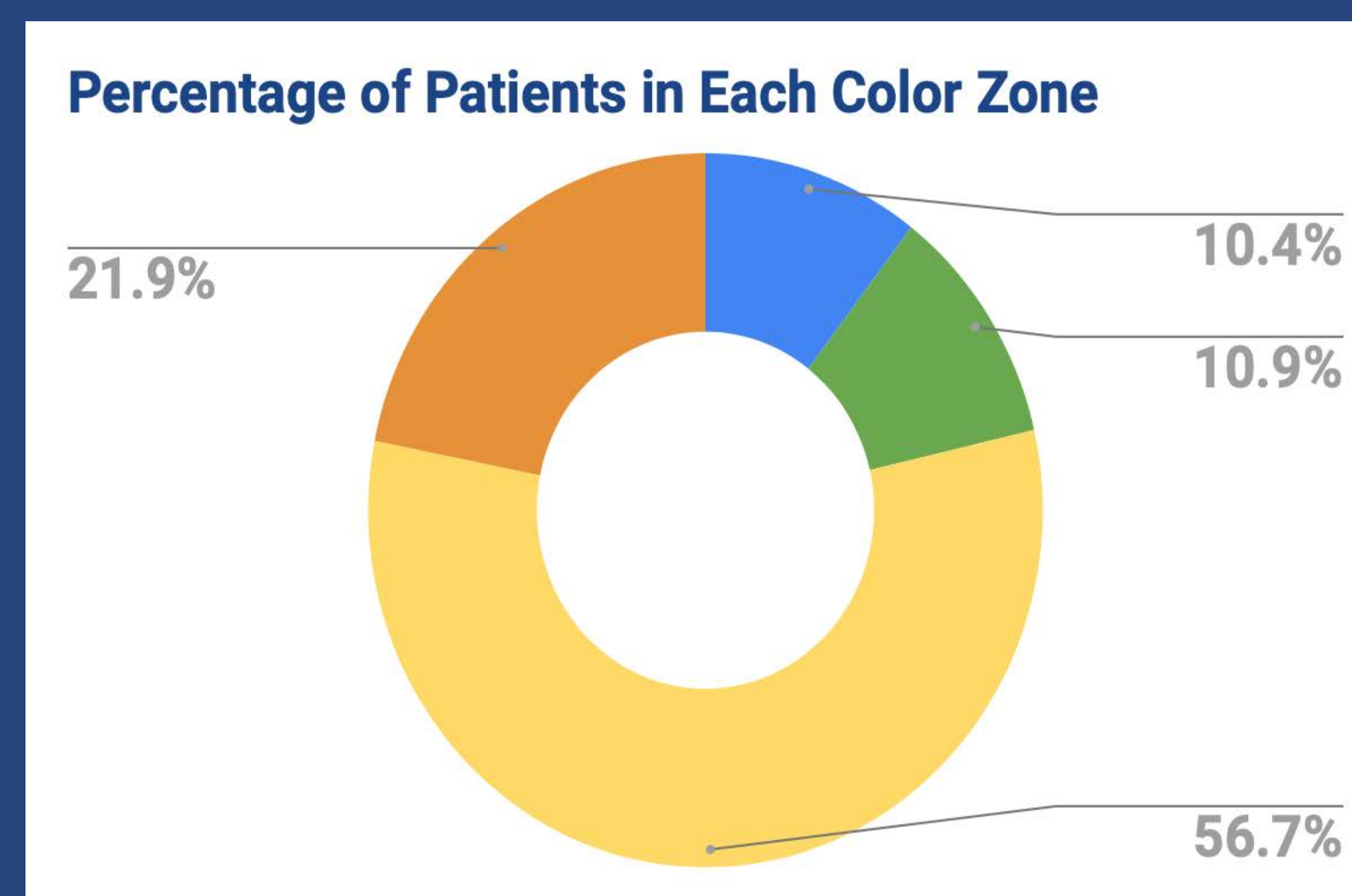
Patients with oculomotor deficits, learning disabilities, and cognitive disfunction as baseline.

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Graph 1: Percentage of Patients with an NPC<9cm



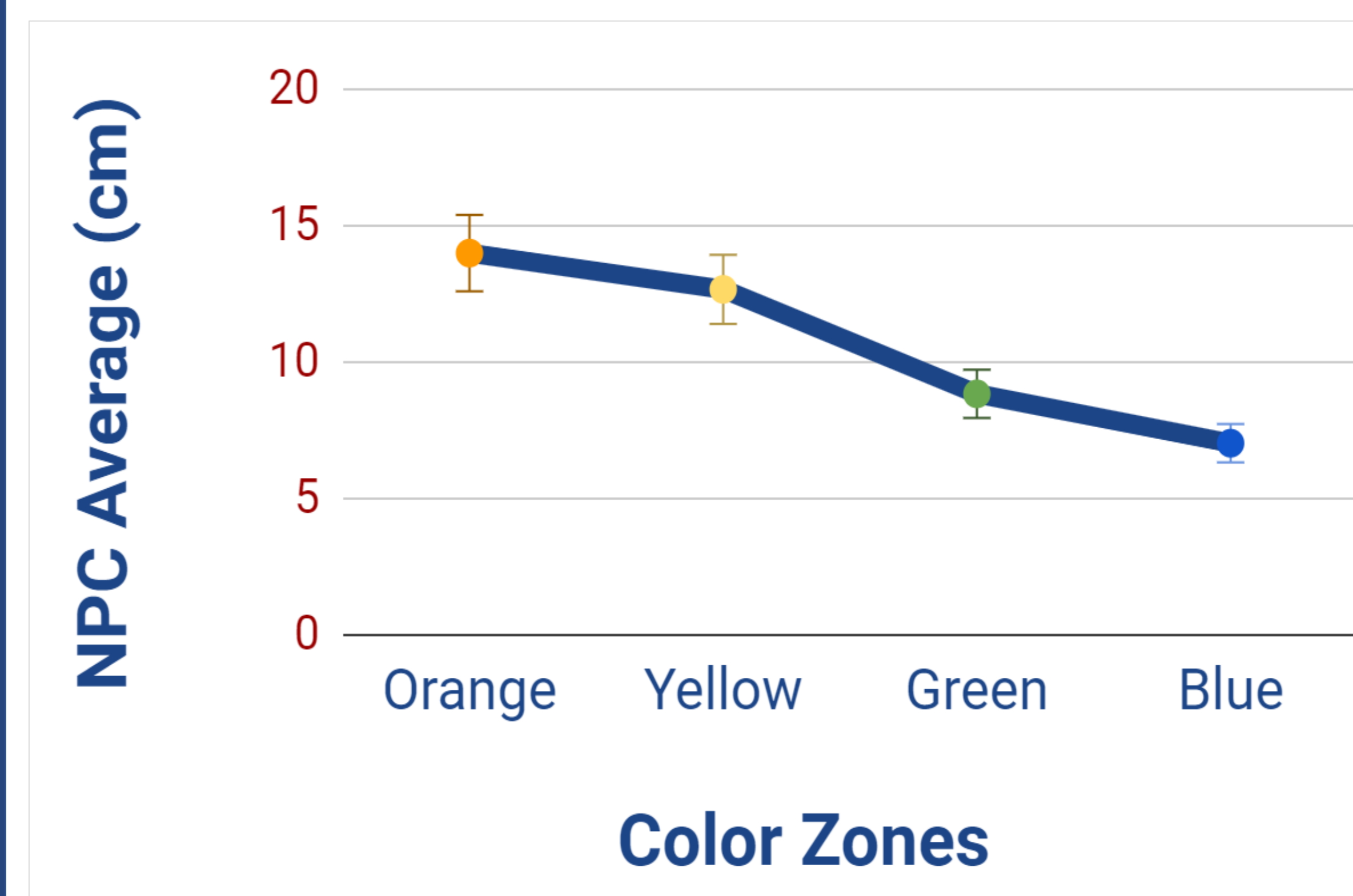
Graph 2: Distribution of Patients in the Cognitive Tolerance Zones



Results:

- There is a statistically significant difference when comparing the average NPC of the **Red** and **Blue** academic zones
 - ▣ **81.4%** of patients in the **Blue** zone have a normal NPC (<9cm)
 - ▣ The **p<0.001** using a pooled proportions test

Graph 3: Average NPC per Color Zone



Conclusion:

NPC appears to **strongly correlate** with **academic tolerance**. NPC can be predictive of return to learn zones for concussed students.

Significance:

- Pilot study that prompts future investigation
- This data supports the use of oculomotor testing (NPC)
- NPC can be easily completed in clinic
- Proper cognitive tolerance may optimize recovery