Circular contrast perimetry via a web application: establishing a normative database for central macular perimetry

Yang Chen, Joshua Meyerov, Simon E Skalicky

Eye Surgery Associates, Suite 52, Cabrini Hospital, Malvern VIC 3144

Introduction

Online Circular Contrast Perimetry (OCCP) is a web-based visual field test application

It offers portable visual field testing on any computer, laptop or tablet with an internet connection
Our previous research has demonstrated the 24-degree OCCP compares similarly to standard automated perimetry (SAP)

This study aims to create a normative database for the central 10-degree OCCP

Eyeonic Online Circular Contrast Perimetry (OCCP)

A

Fixation target
- Spinning gold star
- Progress bar underneath

B

Flickering test target
- appears for 360 msec
- Over 3 x pos/neg cycles

C

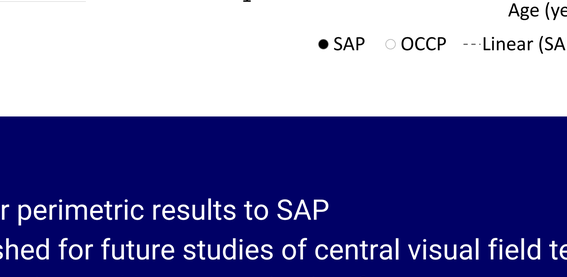
Blind spot localisation
- Optimise viewing distance
- Count fixation loss

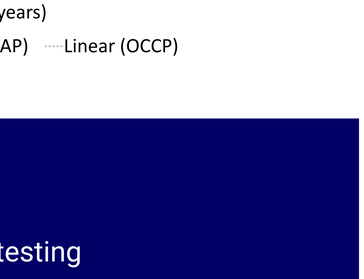
D

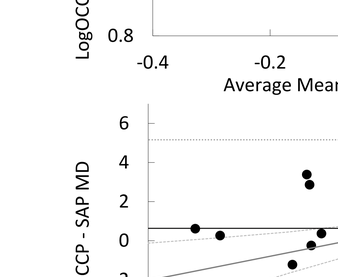
Central 10-degree grid
- Tests central visual field over 52 points

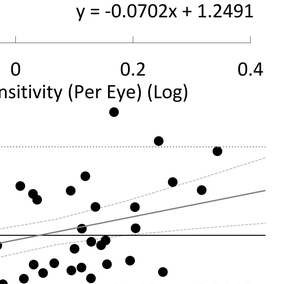
E

User monitoring
- Webcam monitors user
- AI face detection (not recognition)









Methods

Cohort
50 eyes from 50 patients

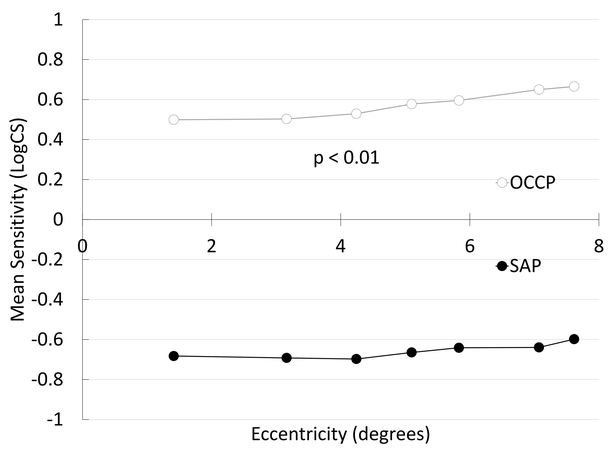
Tests
Standard automated perimetry (SAP), online circular contrast perimetry (OCCP), OCT RNFL and GCC

Outcomes
Mean deviation (MD), mean sensitivity per point and per eye

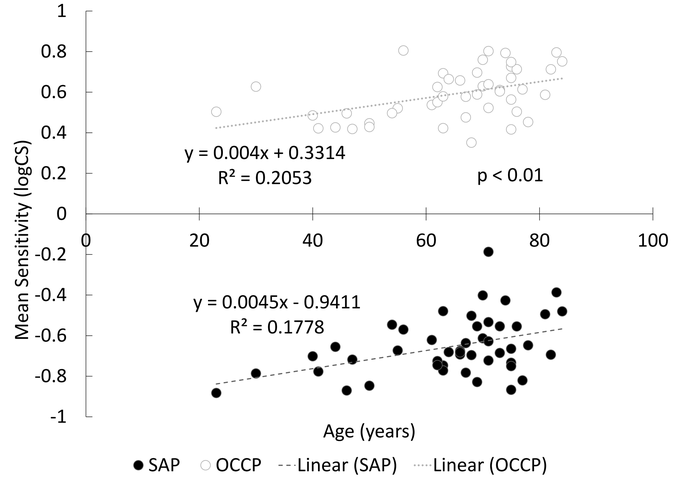
Analysis
Bland-Altman analysis, linear regression analysis

Results

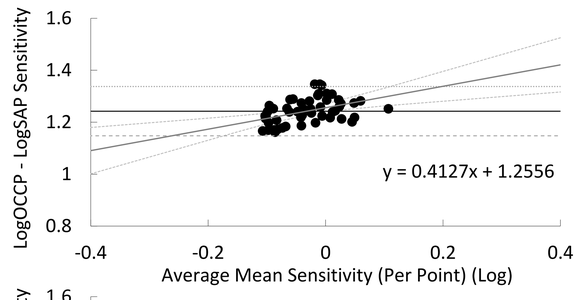
1 OCCP & SAP: eccentricity
OCCP had slightly greater increase in sensitivity threshold with eccentricity than SAP

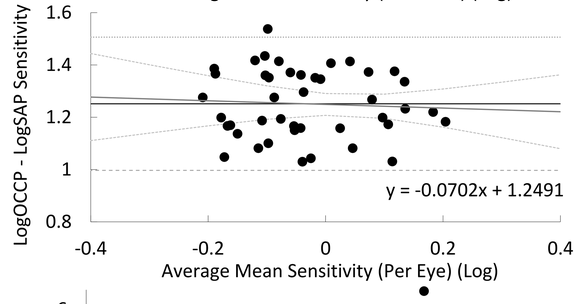


2 OCCP & SAP: across different ages
The effects of ageing are similar for both



3 OCCP & SAP: Analysing bias
Bland-Altman plots for sensitivities and MD





Conclusions

Central 10-degree OCCP has very similar perimetric results to SAP
A normative database has been established for future studies of central visual field testing
OCCP holds promise for expanding screening and home monitoring for glaucoma