

## **UNIFORM READING PROFILE MODEL TO UNDERSTAND READING DISABILITY IN PATIENTS WITH AMD.**

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**Purpose:** Central field loss causes profound reading difficulty. In patients with age-related macular degeneration (AMD), we observe wide variety of impairments in central visual functioning and reading efficiency. The purpose of this study is to understand how residual visual acuity, reading performance, and print size relate each other in these patients. We use a generic reading profile model to understand the relationship. Our model predicts negative correlation of reading acuity (RA) to maximum reading speed(MRS) for patients who show steadily increasing reading speed profile without plateau, and no correlation between RA and MRS for patients with plateau in reading speed profile.

**Method:** We measured visual acuity, RA, MRS, and critical print size (CPS) of 65 eyes with AMD in 52 patients. MNREAD-J (Oda et al, 1998) was used for reading measurements, and Landolt-C rings were used to test visual acuity. Two observers classified reading speed profiles into two categories; (1). one shows plateau with relatively constant reading rate at maximum level, and (2). steadily increasing function without plateau. Visual acuity, RA, MRS, and CPS were compared between these two groups.

**Result:** All measurements showed statistically significant difference between two groups of AMD eyes. Patients in the second category had lower performances in all measurements. When we plotted MRS as a function of RA, we found a strong negative correlation ( $r=-0.86$ ) for these patients, and weaker correlation ( $r=-0.60$ ) for the patients with plateau in reading speed profiles.

**Conclusion:** The result supports our model that reading behavior has basically the same profile for speed versus print size function. The model holds even for the patients with central field loss. It suggests that reading disability found in AMD patients could be the result of insufficient magnification.

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