UNIVERSITI TEKNOLOGI MARA

READING SPEED AND EYE MOVEMENT PATTERN IN ARTIFICIAL CENTRAL SCOTOMA STIMULATIONS

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Requirements for the
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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

READING SPEED AND EYE MOVEMENT PATTERN IN ARTIFICIAL CENTRAL SCOTOMA STIMULATIONS.

***Purpose**:* To determine and compare the reading speed and eye movement pattern with four different locations of artificial central scotoma in normally sighted participants.

Materials and methods: Eleven normally sighted participants with age range from 23 to 26 years old were recruited in this study. After pass all the screening procedure, the participants were then proceed to eye movement and reading speed measurement in normal condition and with 4 artificial central scotoma stimulations. Scotoma size was 10° which equivalent to 1cm in height. The participants were asked to read the Malay reading passage at random order aloud. The time taken to read each chart was recorded and any reading error made was noted. The reading speed was measured in words per minute (wpm). The eye movement pattern during reading was automatically captured using Three-D Videoculagraphy (VOG). The eye movement was measured in term of number of fixations and number of regression.

Results: The reading speed showed significant difference between four different locations of artificial central scotoma stimulation, $F(4,54)=3.17$, $p=0.02$. No significant different was showed in eye movement during reading which obtained $F(4,54)=0.61$, $p=0.65$ and $F(4,54)=0.90$, $p=0.47$ for number of fixations and number of regression, respectively.

Conclusion: The presence of artificial central scotoma stimulation affects the reading speed but not the eye movement patterns in term of number of fixation and number of regression.

Keywords: normally sighted, artificial central scotoma, reading speed, Malay reading passage, Three-D Videoculargraphy (VOG).

TABLE OF CONTENTS

TITLE		PAGE
AUTHOR'S DECLARATION		ii
SUPERVISOR SIGNATURE		iii
ABSTRACT		iv
ABSTRAK		v
ACKNOWLEDGEMENT		vi
TABLE OF CONTENTS		vii
LISTS OF TABLES		xi
LIST OF FIGURES		xii
LIST OF ABBREVIATIONS		xiii
LIST OF SYMBOLS		xiv
CHAPTER1: INTRODUCTION		
1.1	Study Background	1
1.2	Problem Statement	2
1.3	Significant of the Study	2
1.4	Objectives	3
	1.4.1 General Objectives	3
	1.4.2 Specific Objectives	3
1.5	Hypothesis	3
CHAPTER 2: LITERATURE REVIEW		
2.1	Eye Movement and Reading Speed in Normal Vision	4
	2.1.1 Type of Eye Movements	4
	2.1.2 Recording of Eye Movements	6

2.1.3 Eye Movements in Reading 6
2.2 Reading Speed in Central Scotoma 7
2.3 Eye Movement and Reading Speed in Central Scotoma 8
2.3.1 Eye Movements in Visual Search 9

CHAPTER 3: METHODOLOGY

3.1 Study Design 11
3.2 Study Setting 11
3.3 Sampling 11
3.3.1 Sample size calculation 11
3.3.2 Inclusion Criteria 12
3.4 Instrumentation 12
3.4.1 Artificial Central Scotoma. 12
3.4.2 Reading Stimuli 13
3.4.3 Three-D Video Oculagraphy (VOG) 14
3.5 Experimental Procedure 15
3.6 Ocular Parameters and Procedures 16
3.6.1 Distance Visual Acuity 17
3.6.2 Subjective Refraction 18
3.6.3 Amplitude Accommodation 19
3.6.4 Near Point Convergence 20
3.6.5 Reading Speed 21
3.6.6 Eye Movement Measurements 21
3.7 Ethical Approval 24
3.8 Data Analysis 24