

An Investigation of the Effects of Word Length on Amblyopic Eye Movement during Reading

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Abstract : It is well established that amblyopic patients have a reduced reading performance and oculomotor deficits. Word length has a significant impact on reading performance and eye movement behaviour during reading. As there no previous attempts to assess whether amblyopic eyes would be affected by word length while reading. This study aims to assess the effect of word length on amblyopic eye movement behaviour during reading including fixation duration, number of fixation and gaze duration. 21 adults with amblyopia and 21 age-matched controls participated in the study (age \pm SD) (23.80 ± 4.66) for amblyopes and (24.20 ± 3.58) for Controls. Eye movement was recorded during reading binocularly using Eyelink 1000. Study was designed as 2 x 2 (amblyopia vs. control) x 2 lengths (4 letters, and 8 letters). Compared to controls, the amblyopic participants report significant longer duration of fixation, higher number of fixation and longer gaze duration for short words with far higher significant difference for long words. It could be concluded that eye movement in amblyopia during reading might be accounted for by the length of a word within a text and this could possible explanation of reduced reading performance among amblyopes. By understanding the effect of word length on amblyopia will shed light on reading deficits in amblyopia and help to determine the reading needs of amplyopes in educational and clinical settings.

Keywords : amblyopia, eye movement, reading, fixation

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