**What are the contributing causes of reading difficulty in acute stroke survivors? Ocular and non-ocular factors.**

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**Abstract**

Introduction: Visual impairment, which is common after stroke, frequently impacts reading ability. We aimed to explore the visual and non-visual causes of reading difficulty experienced by stroke survivors in a large multi-centre prospective epidemiology study.

Methods: Visual assessment included case history, visual acuity, ocular alignment/motility, visual fields, visual inattention, visual perception and reading ability. This was attempted for all stroke admissions across three acute stroke units.

Results: Of 1500 stroke admissions, 1204 could undertake visual assessment. Of these, 867 were confirmed to have one or more visual impairments; 383 (44.17%) reported visual symptoms likely to impact reading, including 84 (9.69%) specifically reporting reading difficulties related to their vision. We defined ocular conditions likely to impact reading as visual acuity worse than 0.5 logMAR, complete gaze palsy on downward/sideward gaze, saccadic dysmetria, convergence insufficiency/paralysis, nystagmus and complete macular splitting hemianopia. Non-visual causes of reading difficulty were common (414/1204, 34.38%) with 323 non-visual causes reported by those with confirmed visual impairment (alongside or in addition to visual causes) and in 91 stroke survivors with normal visual function. Communication difficulty was the most common non-visual cause (n=270, 65.22%).

Conclusions: Reading difficulty is common in stroke survivors and difficulty with reading following stroke is multi-factorial. Not only is reading difficulty frequently caused by visual impairment, about one third have reading difficulty due to non-visual causes; typically due to communication problems. Early management of visual impairment is important to alleviate impact to reading function, whilst also considering added impact of non-ocular causes of reading difficulty.