

Visual pathways do not age

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In 1997, Pokorny & Smith (Pokorny *et al.*, J.Opt.Soc.Am.A, 14, 1997) developed a psychophysical method to preferentially stimulate either the parvocellular (P) or the magnocellular (M) pathways. This method provides a powerful tool to study potential visual impairments of visual pathways. Their stimuli were based on the luminance contrast gain differences between the two pathways and the mode of presentation of stimuli changes depending on the channel, M or P, to preferentially stimulate. This rules out controversial results found when P and M are stimulated following their color and/or spatial-temporal sensitivities. In this study, we tested whether normal ageing has an effect on M and P pathways. We used the described method to measure contrast thresholds in two populations differing in age (27 vs 60 year old). As expected, we found that both M and P contrast thresholds increase with age but we did not find any difference between the two pathways efficiency measured as the slope of contrasts vs. threshold curve. These results are in agreement with Wuerger's results (Wuerger *et al.*, Ophthalmic Physiol. Opt., 30, 2010) but are non consistent with Elliott's ones (Elliott *et al.* J. Vis, 10, 2010). This inconsistency may be due to (1) the lower mean age of our elderly population (60 vs 70), (2) our use, to produce the stimuli, of a VSG card 2.5 (Cambridge Research Systems) with a more accurate control of luminance as compared to the Elliott's study. To investigate further, we will perform fMRI experiments using the same protocol. Adaptation of the protocol to fMRI and some primary results were presented.

Keywords: visual pathway, psychophysics

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