

COLOUR-OPPONENT MECHANISMS ARE NOT AFFECTED BY SENSITIVITY CHANGES ACROSS THE LIFE SPAN

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Purpose. The purpose of this study was to assess in a large sample of colour-normal observers of a wide age group (n=185; age range: 18-75) whether sensitivity changes across the life span are associated with corresponding changes in the colour-opponent mechanisms that mediate hue perception. We therefore obtained the following data in the same set of observers: the sensitivity along the protan, deutan and tritan line, the settings for the four unique hues from which the characteristics of the colour-opponent mechanisms can be derived, and neutral grey settings. *Results.* We find a significant decrease in chromatic sensitivity with increasing age, in particular along the tritan line. When we predict the relative cone weights (L:M; L:S) of the colour-opponent mechanisms from the chromatic (protan, deutan, tritan) thresholds, we find a pronounced dependency on age for the L:S ratio. The *observed* relative cone weights (associated with a particular hue), on the other hand, are rather constant throughout the life span. *Conclusion.* The weighting of the cone inputs by the colour-opponent mechanisms (red-green; yellow-blue) appears to change with age. Such an adaptive weighting is useful to maintain colour constancy throughout the life span in the presence of known changes in the ocular media and retinal sensitivity losses.

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