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16. Abstract <p>This laboratory study investigated the effects of stimulus duration and the nature of visual correction on discomfort glare. The experimental setup simulated a nighttime driving situation with an opposing glare source at 3.5° of visual angle. There were 25 different glare stimuli, obtained by combining each of five levels of duration (ranging from 0.125 to 2 seconds) with each of five levels of illuminance (ranging from 0.5 to 8 lux). Two groups of subjects participated: those needing no visual correction, and those needing correction and having both contact lenses and spectacles. The latter group of subjects used their contact lenses in one half of the trials and their spectacles in the other half of the trials. Discomfort glare was evaluated using the de Boer discomfort-glare scale.</p> <p>Neither presence of correction (either contact lenses or spectacles versus no correction) nor type of correction (contact lenses versus spectacles) had a statistically significant effect on discomfort glare. When averaged across all subjects, both duration and illuminance had statistically significant effects on discomfort glare, although subjects' discomfort judgments were less affected by duration than by illuminance. Both relationships were well described by log-linear functions. Using these two functions, we generated predictions about the likely changes in discomfort glare as a consequence of selected changes in duration, and about the changes in duration and illuminance with equivalent effects on discomfort glare. For example, a 25% reduction in duration is predicted to reduce discomfort glare by 0.2 de Boer units, and be functionally equivalent to an 11% reduction in illuminance. However, there were wide variations between subjects in the relationship between duration and discomfort glare. These findings imply that, for the effectiveness of headlamp automatic-leveling systems and variable-reflectance mirrors, the control of duration is less important than the control of peak illuminance, at least for transient elevations in illuminance that are relatively brief.</p>					
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