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| 16. Abstract Infrared night vision systems have the potential to improve visibility of critical objects at night well beyond the levels that can be achieved with low-beam headlamps. This could be especially valuable for older drivers, who have difficulty seeing at night and who are especially sensitive to glare. It is unclear whether this benefit comes without ancillary costs, such as additional workload to monitor and interpret the forward view depicted by the night vision system. In this study, we asked young and old subjects to drive at night on a test track while we measured distance and accuracy of target detection, subjective workload, and longitudinal and lateral control of the vehicle. In some conditions, their direct view of the road was supplemented by a far infrared (FIR) night vision system. Two display configurations were used with the night vision system: a head-up display mounted above the dashboard and centered on the driver, and a head-down display mounted lower and near the vehicle midline. Night vision systems increased target detection distance for both young and old drivers, with noticeably more benefit for younger drivers. Workload measures did not differ between the unassisted visual detection task and the detection tasks assisted by night vision systems, suggesting that the added workload imposed by the night vision system in this study is small. | | | | | |
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