

Abstract

Bicyclists face the risk of being injured or killed in crashes with motor vehicles, even during the daytime. Because the majority of bicyclists involved in collisions with motor vehicles are struck from behind, it is important that cyclists make efforts to help approaching drivers to detect and recognize their presence. The present study examined the conspicuity benefits of bicycle taillights during the daytime. Participants' eye movements were recorded as they searched for vulnerable road users in videos that were recorded from the perspective of a driver in a vehicle moving in the same direction as the cyclist. Five of the videos contained a bicyclist who displayed one of five taillight configurations. The distance at which the participants first glanced at the bicyclist was recorded, as was the distance at which the participant pressed a button to indicate that they had become confident that a person was present. The results indicated that the mean distance at which the bicyclist was detected was significantly greater than those from which the bicyclist was recognized. Further, the bicyclist was recognized from significantly greater distances when using a flashing or steady seat post-mounted taillight than when lights were mounted to the rider's heels (either with or without the addition of a steady seat post taillight) and when no taillight was displayed. These findings confirm that flashing and steady seat post-mounted taillights can enhance drivers' ability to recognize the presence of bicyclists during daylight. The results of this study can be used to educate cyclists on the ways in which taillights can enhance bicyclist conspicuity during the daytime. Additional research is recommended to further explore how taillights affect the eye movements of drivers as they approach a bicyclist.