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# Using reflective clothing to enhance the conspicuity of bicyclists at night

## Breakdown

Bicycle and pedestrian fatalities account for approximately ⅓ of all road fatalities and serious injuries. (Kwan et al, 2002).

Night-time bicycling is more dangerous than daylight bicycling, 40% of all fatalities occur at night despite less bikers on the road (Jaermark et al., 1991). There is high proportion of fatalities due to problems with visibility from the front rather than the rear.

## Study and Results

Licensed drivers were put into closed road circuit test in night-time conditions. The road was lengthy and visibly challenging with no lighting (ambient or traffic). A test bicyclist was positioned adjacent to glare lights within the course, with a second bicyclist to reduce expectancy effects. The test bicyclist wore one of 3 clothing configurations- black clothing, retroreflective meshing vest and retroreflective vest with ankle and knee pieces. The handlebar-mounted lights of the bicycle were also configured either in a flashing, static, or no-light condition. The drivers completed 11 laps of the circuit. They were instructed to press a touchpad and shout “person!” when they saw a person present on the track.

Drivers responded to the presence of the cyclist on 70% of laps- 55% total by older drivers and 86% by younger drivers- with 27% being the lowest response rate (black clothing, no lights, older drivers) and 100% (all lights, younger drivers) being the highest.

Visibility clothing therefore significantly improved the chances of a driver recognising the presence of a cyclist.

Drivers were shown to respond to the cyclist at a mean distance ranging for 58.7m: 5.0m (all black, older drivers, no lights) to 223 m (vest, ankle and knee, younger drivers, no lights).