Incidents between Straight-ahead Cyclists and Right-turning Motor Vehicles at Signalised Junctions

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ABSTRACT

Accidents between right-turning motor vehicles and straight-ahead cyclists are one of the most common accident types leading to cyclist injuries at signalised junctions in Denmark. A before-after safety evaluation of applying staggered stop lines in 189 arms at 123 signalised junctions is presented. The evaluation accounts for long-term accident trends and changes in motor vehicle traffic volumes. Applying staggered stop lines gives no decline in accidents between right-turning motor vehicles and straight-ahead cyclists. However, there is a tendency to a significant decline in these right-turn accidents involving heavy vehicles. There are several questions about factors leading to right-turn accidents that cannot be answered by recorded accident data. A study of conflicting behaviour focuses on factors leading to conflicts. Video observations have been carried out in 10 arms at signalised junctions. 45 situations with conflicting behaviour between right-turning motor vehicles and straight-ahead cyclists have been investigated and compared to a reference group of simultaneous arrivals. The relative risk is lowest when both parties stop on red before entering the junction. Upon simultaneous arrival of both parties at a green light, the relative risk is highest. Cyclists tend to have a higher relative risk for being involved in conflicts if they ride through on yellow, have a time distance of at least 2 seconds to other cyclists, wear a black jacket or arrive at the junction at a speed of at least 25 km/h. Much less can be said about the motor vehicles or their drivers on the basis of these video observations, but motor vehicles stopping in the cycle crossing in order to yield to pedestrians or cyclists have a higher relative risk of being involved in conflicts.

Keywords: cyclists, right-turn, behaviour, safety, conflicts.