

Summary

Cycling in pedestrian streets.

Traffic volumes, interaction and conflicts between cyclists and pedestrians in Torggata and Brugata in Oslo, Norway

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Cycling in pedestrian streets is allowed in Norway as opposed to in most other European countries. Little is known about interactions between cyclists and pedestrians in such streets. Using video recordings, the number of pedestrians and cyclists in Torggata and Brugata in Oslo, Norway, was mapped on a typical weekday and a typical Saturday in the summer. Also the speed of cyclists was measured and we recorded interactions and conflicts between cyclists and pedestrians. The results show that there are more pedestrians and more cyclists in Torggata than in Brugata. The speed of the cyclists is highest in Torggata in direction towards Youngstorget: 19 km/h in the morning and 14 km/h in the afternoon. In the other direction, and in Brugata it is respectively 17 km/h in the morning and 12 km/h in the afternoon. There are many cyclists here, and thus many interactions between cyclists and pedestrians. However, there are few conflicts and the share of conflicts (relative to the number of interactions) is low, approximately 0.3 – 0.4 percent. This is far lower than the share registered in 2015 in the bicycle friendly street further north of Torggata.

The interaction between cyclists and pedestrians in pedestrian streets

The purpose of this study has been to map the extent of the cycling and how the interaction between cyclists and pedestrians takes place in typical pedestrian streets. On behalf of the municipality of Oslo, we have registered the number of pedestrians and the number of cyclists in Torggata and in Brugata in Oslo by means of video recordings of traffic. We have measured cyclists' speed and the number of interactions and conflicts between cyclists and pedestrians, i.e. we have registered if one or more road users have had to change course or speed due to another road user (interaction) and if one or more had to brake or change course abruptly (conflict).

Many cyclists in the pedestrian streets in Torggata and Brugata

Both Torggata and Brugata carry much traffic. During a regular weekday in the summer (May/June), nearly 18,000 pedestrians pass through Torggata. On a regular Saturday there are even more - well over 23,000. There are also many cyclists in Torggata. On ordinary weekdays, almost 3000 cyclists pass through the pedestrian area. This is much more than in many streets with dedicated cycling infrastructure, and close to the number registered in 2015 in the north end of Torggata, where cycling is specially facilitated (approx. 3500). There are fewer cyclists on Saturdays than on weekdays, approx. 800 passes on Saturdays. The fact that many cycle through Torggata does not imply that the pedestrian area of Torggata is attractive to cyclists. It is probably due mainly to a lack of alternative routes.

In Brugata there are fewer pedestrians and cyclists. Nearly 14,000 pedestrians were registered during a regular weekday in June, and approx. 1200 cyclists. On Saturdays there are more pedestrians - over 18,000 and fewer cyclists, approx. 700, similar to Torggata.

Cyclists' speed depending on the number of pedestrians

Cyclists' speed was measured at two times during an ordinary weekday, both in Torggata and in Brugata. We recorded average speed in the morning from 06:00 till 08:00 am and in the afternoon from 12:00 till 15:00 pm. Both in Torggata and Brugata the speed was much higher in the morning than in the afternoon. The reason is that there are many pedestrians in these streets in the afternoon and thus not possible for cyclists to keep high speed.

In Torggata we recorded an average speed in the morning of approx. 19 km/h in the direction of Youngstorget and approx. 18 km/h in the direction of Stortorvet. In the afternoon the speed was approx. 14 km/h towards Youngstorget and 13 km/h towards Stortorvet. In Brugata, the speed in the morning was approx. 17 km/h in both directions. In the afternoon the speed was 12 km/h in both directions.

Few conflicts between cyclists and pedestrians

We recorded a lot of interactions between cyclists and pedestrians. The typical pattern is that one cyclist interacts with several pedestrians through the street. It is also almost without exception the cyclists who adapt to pedestrians by swinging or slowing down. Periodically, there are so many pedestrians, especially in Torggata, that cyclists are becoming more or less blocked.

We registered 13 conflicts between cyclists and pedestrians during a regular weekday in Torggata. Measured in relation to the number of interactions (3882), the proportion is only 0.33 percent, which is relatively small. In the northern part of Torggata, where cycling is facilitated, the conflict rate is 50 times as high according to records from 2015. The registrations in the northern part of Torggata indicated that the high proportion of conflicts was probably due to the fact that the pedestrians and cyclists had different expectations of what type of street Torggata is there; pedestrians behave as if it is a pedestrian street, while cyclists behave as if they have the right to the street area. In the pedestrian zone further south it is clear to both that there is a pedestrian street and the cyclists cycle slowly and give way to the pedestrians.

Also in Brugata there were few conflicts between cyclists and pedestrians. Six conflicts were recorded during a regular weekday. In relation to the number of interactions (1535), the share is 0.39 percent. On Saturdays, there are less conflicts in both Torggata and Brugata.

An interesting finding is that we recorded a total of eight conflicts between cyclists in Torggata. This is partly due to the fact that when there are many pedestrians it is difficult for cyclists to see, and two cyclists in each direction can try to use the same opening.

The interaction between cyclists and pedestrians runs quite well in Torggata and Brugata

Based on the results presented here, one may conclude that cycling in pedestrian streets seems to work well for both cyclists and pedestrians when looking at the level of conflicts. The results indicate that the cyclists go through these streets on "pedestrians' premises" as intended in the Torggata regulation in 1991. However, for cyclists the accessibility in such streets is very much restricted by the large number of pedestrians.