

CYCLING RESEARCH

This is the first of what will hopefully be an ongoing series of articles on cycling-related research around the world. All feedback please to Glen Koorey (koorey@paradise.net.nz).

Is it Safer to Ride on the Footpath?

Many of you will have seen the AA's recent call for allowing children to ride their bikes on the footpath. Ignoring all the related issues about driver behaviour, child freedoms, etc for now, let's have a look at some of the safety evidence about cycling on roads and footpaths.

The first important thing to remember is that by far most cycle crashes do NOT involve motor vehicles on the road. People fall off or hit objects for various reasons, and they also have many crashes on off-road paths with pedestrians, dogs, and other cyclists. In a recent New Zealand study (Munster et al 2001), it was estimated from hospital data that four times as many cyclists are injured from cycle-only crashes on the road or footpath than those involved in a motor vehicle collision (note that this doesn't include off-road mountain-biking track accidents either). When looking specifically at children, Safekids (2001) concurred, with 85% of NZ hospitalisations for bicycle-related injuries to children during 1992-96 not involving a motor vehicle. Similar findings have been found overseas (Moritz 1998, Carlin *et al* 1995).

It is also worth noting that many crashes with motor vehicles will not be reduced by footpath riding. Cyclists would still have to cross side roads and driveways, where many conflicts occur. As Forester (2001) points out, a key assumption for advocating off-road paths is that same-direction motor traffic is the greatest danger to cyclists (e.g. being hit from behind). For American data, he showed that these types of crashes made up only 1% of all cycle crashes (on & off-road) - hardly a panacea for cycle safety.

Closer to home and concentrating on road-specific crashes, LTSA injury crash data for 1996-2000 shows that 58% of urban cycle crashes are intersection crashes (including driveways). Looking specifically at on-road crash movements that could be avoided on a footpath (e.g. hit car door, rear-ended), less than a quarter of all on-road crashes appear to be likely candidates, based on crash movement codes.

In moving cyclists to the footpath however, additional crash problems may be introduced. More conflicts with pedestrians are likely for example and there may be less reaction time for driveway or side-road conflicts. Poor surfaces and geometrics are also likely to contribute to the footpath hazards. In fact, a number of studies have found that the crash rate involvement when cycling on footpaths (or "sidewalks") is considerably higher than on the road or off-road cycle paths.

Aultman-Hall & Hall (1998) surveyed 1600 respondents around Ottawa, Canada, recording regular routes taken to work/education, amounts of cycle travel, and crash details. From "event" exposures calculated on roads, off-road paths, and sidewalks, they found that the likelihood of fall or injury (per 10⁵ km) was four times higher on sidewalks than roads. These findings caused the authors to dig a little deeper on this issue. When Aultman-Hall & Adams (1998) looked at cycle travel data from >2500 respondents in both Ottawa & Toronto, Canada, the mean fall/collision rates on sidewalks were 2-10 times higher than equivalent incidents on roads or off-road paths. A large proportion of sidewalk incidents involved other cyclists, and surface conditions were also a factor, e.g. cracked or uneven pavements.

Moritz (1997) found similar findings from an internet/mail survey of "regular" commuters in US/Canada (2300 responses). Although "other" facilities (mainly sidewalks) accounted for only 0.8% of distances travelled, they accounted for 4.4% of crashes reported, a ratio of >5 compared with the on-road ratio. Further investigation by Moritz (1998) on the relative crash rate for different facilities showed sidewalks to be extremely dangerous (16 times worse than other facilities).

The above studies generally focused on adult commuter cyclists, whereas the AA's initial stance focused on children. Not as much research can be found on this, however Carlin *et al* (1995) interviewed ~100 children admitted to hospital for bike injuries in Melbourne, Australia and compared them with 100 children who cycled but had not been injured. They found that 40% of injuries occurred on sidewalks or adjacent nature strips, a higher proportion than actual usage. Although further data was needed, they tentatively concluded that riding more on sidewalks was associated with an increased risk of injuries (~3 times greater for those riding >5km/week on sidewalks).

So is the sidewalk entirely to blame for the noted higher crash problems? An interesting finding by Aultman-Hall & Adams (1998) was that regular sidewalk cyclists also had higher on-road crash rates than non-sidewalk users. This raised the possibility that sidewalk riders are generally less confident and lack the skills and training of regular on-road riders (although they did find that even "regular" commuters had similar crash problems on sidewalks). They suggested that practical training of sidewalk cyclists may be more

useful than just trying to get them off the sidewalk. This may be quite a relevant factor when considering where children should be cycling.

Despite the statistics, a big concern however is that a crash with a motor vehicle is more likely to lead to serious injuries, hence the preference to take one's chances on the footpath. Certainly most bicycle-related deaths involve a collision with a motor vehicle. Over the five-year period 1992-1996, 25 children were killed in bicycle-related incidents in NZ, of which 22 (88%) resulted from a collision between the child and a motor vehicle (Safekids 2001). But, while moving the cyclist off the road may be reducing their injury severities, it may be transferring serious injuries to pedestrians that are hit by them (albeit fairly rarely fatally). And in fact, Aultman-Hall & Hall (1998) found in their survey that the likelihood of "major" injuries was still about 1.7 times greater on sidewalks than roads.

Do these research findings sound the death knell for legal footpath cycling? Maybe not, just for cycling on our existing street-paths designed for pedestrians. Providing specifically designed off-road cycle paths (or even just wider paths) can help to minimise road crash problems without introducing major off-road problems. Residents and visitors to Christchurch might like to check out Tennyson St (Beckenham) for an example of off-road cycle paths running along each roadside adjacent to the pedestrian footpath.

If all of these crash statistics make you feel a little vulnerable on your bike, consider the fact that only 1.1% of cyclists injured in urban on-road crashes died, compared with 1.5% of vehicle occupants and 4.2% of pedestrians (from recent LTSA crash data). And over the ten years that the AA article found that 56 children had died in cycle crashes, more than 150 young pedestrians and more than 1100 children in motor vehicles died. Maybe the AA should look at its own backyard?

Still, while statistics can tell you many things, it's people's perceptions that often count. Given that children under 10 are generally considered not to have sufficient cognitive or traffic skills to ride on the road unaccompanied, allowing them at least to ride on the footpath may be a reasonable way for them to be introduced to the fundamentals of cycling. I suspect that a lot of parents will agree, but the old lady down the road might not. Let the debate continue!

References

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