



Health Benefits of Bike Sharing Depend on Age, Gender

Although men of all ages and older women who bicycle improve their health, for younger women, the disproportionate fatality rate from accidents canceled the advantage afforded by exercise

Mar 12, 2014 | By [Lucas Laursen](#)

In the middle of the evening rush hour last November 29 more than 1,000 London cyclists staged a "die-in" to protest the traffic deaths of fellow riders and to demand more investment in bike-friendly roads. London's streets may have grown friendlier to cyclists since the 2010 introduction of its Barclays Cycle Hire bike-sharing system but according to those at the protest, London is still too dangerous. The hundreds of cities that have launched bicycle-sharing systems in the last decade offer similar reasons for doing it: Bicycling reduces car traffic and pollution in city centers and is healthy exercise. But although all road-users benefit from less-crowded streets, a recent study suggests that the health benefits of bike-sharing programs depend on who is doing the riding.



Bike Rental, Kensington Gardens, London. Credit: [Daniel X. O'Neil/Flickr](#)

London's bike-sharing program had registered 191,702 users at last count. Public health researcher [James Woodcock](#) at the University of Cambridge in England and his colleagues imagined, and calculated, how those riders lives might have been different



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had they not used the bikes. They examined data from 2.1 million hours of use between April 2011 and March 2012 and compared the health impact of those 2.1 million hours with the alternatives: more walking, public transit use or driving. To their surprise, [the team reports in the February 13 *BMJ* \(*British Medical Journal*\)](#), the switch to cycling may not have been helpful for young women. The health benefits also seem to differ by age, with older riders of both genders gaining more benefits than younger ones.

A [growing number of studies](#) are exploring the impact of bike sharing. Before Woodcock's study the largest such [analysis](#), published in the *BMJ* in 2011, examined Barcelona's [Bicing](#) program and yielded more optimistic results: a far higher ratio of health benefits to risks of injury, although it did not distinguish between men and women or by age. The disagreement may stem from differences in each study's modeling methods or differences in the populations they examined. Barcelona has more older riders, for example.

To explore the difference between his findings and the earlier ones, and help make his model more generalizable, Woodcock varied several of the inputs into his model to learn how important each one was to net health impacts. For example, he found that the level of air pollution in a city is only a small contributor to the net health impact of switching from other forms of transport to bicycling. "I think understanding what [the model is] sensitive to is quite important," Woodcock says, because it helps focus policy makers on the factors most likely to have a health impact.

Woodcock determined that the biggest factor in deciding how a population's health responded to bike sharing was the population's age structure. Older commuters are more likely to die of heart disease or diabetes than younger ones, so when they switch to bicycling, they win longer life spans. It's not a free ride, however: older riders are also more likely to die in accidents than younger bikers. Still, the benefits of postponing heart disease seem to increase faster with age than does the risk of dying in an accident. Because men are more prone to heart disease than women are, the health benefits of switching to cycling were greatest in older men.

The next-most important factor in modeling how a population's health changed with bike sharing was the rate of injury. Here Woodcock sought data from two sources: He examined injuries that police officers or others reported as having to do with shared bikes, and he used existing data on the injury rates of cycling, including on private bicycles, in London before launch of the bike-sharing system. (The use of the existing data requires the assumption that bike sharing has the same injury rate as private

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cycling, an assumption that is supported by [one small study](#). Woodcock found lower reported bike-sharing injury rates than for private bicycles before bike sharing began.) Despite the fact that women accounted for only about 30 percent of the time spent cycling, more than half the traffic fatalities during the sample period were women. For younger women, the disproportionate fatality rate canceled the health boost of the additional exercise enjoyed both by men of all ages and older women. "We don't really know what's going on" with women, Woodcock says, but "there are things you can understand" such as the fact that the vehicles killing women are heavy vehicles, not passenger cars. Outside the city center women die at a lower rate, Woodcock wrote in an e-mail.

One limitation of this and other studies of bike sharing conducted thus far is that riders use shared bikes so little (the typical midweek ride is less than half an hour long), so the statistics have limited power.

One of the authors of the Barcelona study, environmental scientist [Audrey de Nazelle](#), now at Imperial College London, calls the London study "very thorough" and says she also cannot explain why young women in the bike-sharing scheme were more injury prone. Yet the apparent health benefits to other members of the population are so strong, de Nazelle says, that the findings should motivate policy makers to find ways to make biking safer for injury-prone riders.

A 2012 review ([pdf](#)) of urban bicycle safety in the *University of British Columbia Medical Journal* came to the same conclusion, but added a suggestion for how to achieve it: Dutch-style separation of city bike traffic from car and pedestrian traffic. Bikers in the Netherlands got their separate lanes by dying, and with die-ins in the 1970s. It is now seven to eight times safer for women to ride there than in certain areas of London, Woodcock says. Now that more cities are sharing bikes, perhaps they can share those hard-won lessons, too.

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Despite the statements of BMJ, whose Editors know surprisingly since its discovery CAD Inherited Real Risk (1), before starting any physical exercise one has to exclude the presence of such a heritable predisposition to CAD in individuals in any age.

1) Sergio Stagnaro CAD Inherited Real Risk, http://doc2doc.bmj.com/forums/open-clinical_diabetes_cause-cardiovascular-mortality-middle-aged-people-type-2-diabetes-2004-2010; <http://connection.ebscohost.com/c/articles/87951153/inherited-real-risk-coronary-artery-disease>

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SashaBirman

March 12, 2014, 10:33 AM

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