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London's cycle hire scheme: good or bad for health?

Recent visitors to central London will have noticed the new hire bikes whizzing around the capital. The Barclays cycle hire scheme was launched at the end of July 2010, and in the first two months Transport for London (TfL) figures show these bikes have been hired for over 825,000 journeys (1). But with concerns over air quality and busy traffic in the capital, do the public health benefits of this scheme outweigh the risks?

The London bike hire scheme is the latest attempt to capitalise on the growing interest in cycling and the desire to reduce the negative impacts of urban traffic. A 2004 review found 11 schemes in existence worldwide, in Austria, France, Germany, the Netherlands and Norway (2). More recently, the Vélib scheme in Paris has seen 120,000 trips being made every day, making a highly visible difference to the city's transport patterns. However, there appears to be little published evidence of the impact of these schemes, especially in terms of health.

Cycling has significant health benefits (3) but these must be balanced against the potential risks. A number of studies have documented that long-term exposure to traffic-related air pollution is associated with adverse health effects including increased mortality (4). Cycling in motor traffic can lead to higher levels of inhalation of particulates than other modes of transport, due in part to the higher ventilation rates of the physically active cyclist. A recent review noted that while air pollution *exposures* experienced by car drivers were modestly higher than those experienced by cyclists, *inhaled doses* of fine particles may be higher in cyclists (5). However this can be in part mitigated by choice of route and road positioning. The hire bikes are mostly used for short journeys, and inhaled particles are unlikely to constitute a significant increase in health risk for the majority of their riders, relative to the exposure they would have received anyway in the city.

The other main concern is road traffic casualties, with fear of being involved in a crash a major deterrent to cycling (6). In 2009, before the start of the scheme, 13 cyclists were killed and 398 seriously injured on London's streets, but these figures must be placed in the context of around half a million trips per day being cycled in the capital (6). Early data from the hire scheme suggest an even lower level of risk: TfL report that during the first 60 days of operation, there were six reported injuries out of 825,000 journeys (1). Overall, cycling

casualties in London declined by 27% between 1986 and 2007, before rising slightly in 2008. But this is set against a doubling of the level of cycling between 2000 and 2008, meaning the risk of injury per trip is falling (6). This reflects the findings from international reviews where higher levels of walking and cycling have been associated with lower risks of injury (7). Getting more people onto bicycles has the potential to make the roads safer for all, not just the cyclists.

The principal benefits to health arise from the potential increases in physical activity among the users of the hire schemes. Regular cycle commuters have been found to have a 28% lower risk of premature death from any cause compared to non-cyclists (8). A tool for quantifying the health benefits of cycling, developed by the World Health Organization, allows the calculation of the economic value of these benefits, which may be very high (9). This is illustrated by the strongly positive benefit-cost ratios found for cycling promotion programmes across England (10). To quantify the benefits of the hire scheme properly requires data on the length of journey; the previous mode of transport; and the physical activity patterns of the users. These data are not currently collected by Transport for London; all that is known is that 93% of trips were of less than 30 minutes duration. A pilot scheme in Hammersmith and Fulham in 1994 found that 6% of users claimed to have switched from the car, and 34% from bus and the Underground (11). If this pattern is repeated across London there will be substantial benefits to public health, both from improvements to personal health through increased physical activity, and from reductions in the numbers of buses and cars on the road leading to better air quality, fewer injuries, and a more pleasant urban environment.

Some critics of the scheme may be concerned that users of these bikes are unlikely to wear helmets, as these are not provided. However, as we know from the experience of other countries (7, 12), high levels of cycling are correlated with low levels of death and serious injury among cyclists, independent of helmet use. If Londoners swap their cars for human-powered transport, the benefits will greatly outweigh the risks (5). Policies such as congestion charging and the cycle hire scheme that contribute to a shift in the balance of urban traffic away from the car and towards cycling and walking have the potential to create major positive impacts on public health and wellbeing.

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