

Elevated Blood Alcohol and Risk of Injury Among Bicyclists

To The Editor: Dr Li and colleagues¹ studied 124 cases of serious injury, including 34 deaths, among bicycle riders whose blood alcohol content (BAC) was measured. Alcohol was detected in 16 cases and BACs for these cases ranged from 0.02 g/dL, the threshold of detection, to well over 0.20 g/dL. (This latter figure is inferred from the mean of 0.18 g/dL reported by the authors for those 16 cases with positive BAC results, although no data were reported about the actual distribution of BAC.)

The 10-fold range of BAC results, from 0.02 g/dL to 0.20 g/dL, is quite large and reflects alcohol consumption ranging from a single drink to extreme intoxication. It makes little sense to treat these subjects as though they all had the same level of risk. Nonetheless, Li et al did precisely that by calculating the odds ratio of bicycling injury for all BACs greater than 0.02 g/dL. The resulting odds ratio of 5.6 for injury is thus misleading. The authors' data suggest that this procedure is questionable. Three of the 124 cases (2.4%) had a BAC between 0.02 g/dL and 0.07 g/dL, as did 7 of the 342 control cases (2.0%). In other words, low-to-moderate drinkers were as prevalent in the injury group as in the control group ($P = .71$). Nonetheless, Li et al misleadingly imply that just 1 drink multiplies a cyclist's injury risk more than 5-fold.

Li et al also claim that bicycling with a BAC of 0.08 g/dL or higher is associated with a 20 times greater odds ratio of injury. This result similarly requires lumping together very different cases, with BACs ranging from 0.08 g/dL to at least 0.20 g/dL.

This article displaces attention from the primary source of risk to bicyclists: a hostile road environment created by an automobile-dominated society. It will further discourage bicycling, an intrinsically benign and healthful form of transportation and recreation that, with walking, offers the best means to increase physical activity,² at a time when inactivity is a significant public health problem.³

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2. Koplan JP, Dietz WH. Caloric imbalance and public health policy. *JAMA*. 1999;282:1579-1581.

3. Allison DB, Fontaine KR, Manson JE, Stevens J, VanItallie TB. Annual deaths attributable to obesity in the United States. *JAMA*. 1999;282:1530-1538.

In Reply: Mr Komanoff correctly points out that the information about BACs presented in our article is inadequate for gauging the detailed distribution of BACs in the study subjects. For the 16 case bicyclists who tested positive for alcohol, BACs ranged from 0.02 g/dL to 0.35 g/dL, with a mean of 0.18 g/dL; for the 10 control bicyclists who tested positive for

alcohol, BACs ranged from 0.02 g/dL to 0.13 g/dL, with a mean of 0.07 g/dL. The range of positive BACs was indeed wide, especially in the case bicyclists. We estimated the odds ratio of bicycling injury according to BAC 0.02 g/dL or greater and BAC 0.08 g/dL or greater, with BAC 0.02 g/dL or less being the referent group. We defined a positive BAC result as 0.02 g/dL or greater. A BAC of 0.08 g/dL is widely used in research and legislation as the cutoff point for being alcohol impaired. Given the modest sample size, we believe that our approach to the data analysis is scientifically sound. It would be desirable to determine the exact "dose-response" relation between BAC and the risk of bicycling injury in a considerably larger sample.

The modest sample size does not allow a reliable estimate of the odds ratio of a bicycle injury related to BACs between 0.02 g/dL and 0.07 g/dL. Matched analysis indicates that, relative to a BAC of less than 0.02 g/dL, the odds ratio of a bicycling injury is 1.4 (95% confidence interval [CI], 0.3-5.0) for a BAC between 0.02 g/dL and 0.07 g/dL. The effects of a low dose (ie, BAC \leq 0.04 g/dL) and alcohol-related "hangover" on cognitive functions and safety performance have been well documented in the literature based on both experimental and observational studies.¹⁻⁴ Our data, albeit inconclusive, do indicate that BACs between 0.02 g/dL and 0.07 g/dL may increase the rider's risk of fatal or serious injury. It would be misleading and irresponsible to conclude that riding a bicycle after moderate alcohol consumption is safe.

We agree with Komanoff that bicycling is a cost-efficient mode of personal transportation and an effective form of recreation and exercise. Our study was designed to examine the role of alcohol in bicycling injuries and to provide scientific data for developing education and other intervention programs to improve bicycle safety, a goal that we and Komanoff share.

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Letters Section Editors: Stephen J. Lurie, MD, PhD, Senior Editor; Jody W. Zylke, MD, Contributing Editor.

1. Zador PL. Alcohol-related relative risk of fatal driver injuries in relation to driver age and sex. *J Stud Alcohol*. 1991;52:302-310.
2. Modell JG, Mountz JM. Drinking and flying: the problem of alcohol use by pilots. *N Engl J Med*. 1990;323:455-461.
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Health Benefits of Breastfeeding Promotion

To the Editor: Dr Kramer and colleagues¹ found that an intervention to promote breastfeeding in a developed country (Belarus) increased the duration and exclusivity of breastfeeding. Although breastfeeding is known to result in a large absolute reduction in mortality in developing countries,²⁻⁴ until now the benefit in developed countries was suspected but not certain. While the breastfeeding intervention resulted in a 4% absolute reduction in gastrointestinal tract infections and a 3% reduction in atopic eczema, it did not reduce rates of respiratory tract infections, otitis media, croup, or wheezing. Nor did it result in fewer hospitalizations. These health benefits seem to be modest and we are concerned that the conclusion of Kramer et al that "these results provide a solid scientific underpinning for future interventions to promote breastfeeding" is overstated.

Policy makers, health providers and health activists must take care in how the results of this study are used to promote breastfeeding in countries like the United States. The health benefits demonstrated (eg, the breastfeeding intervention results in a 30% relative reduction in gastrointestinal infections) should not be overstated. Similarly, the results should not be used to support a goal of a 100% rate of breastfeeding. Instead, efforts to promote breastfeeding should acknowledge that women have a real choice and provide them with accurate information to help them make this choice.

Too often, programs that support postpartum lactation in the United States are less about assistance than about advocacy. These programs assume that all women want to breastfeed and that all women should do so. Women may come away from these programs with an inflated perception of the health benefits of breastfeeding. Consequently, they may feel that not breastfeeding will seriously jeopardize their infant's health. Many would be very surprised to learn that bottle feeding confers (for example) a 13% chance of developing diarrhea during the first year of life, whereas breastfeeding reduces that chance to 9%.

Research on breastfeeding support should focus on how to best provide mothers with assistance in weighing the benefits of breastfeeding against the drawbacks.⁵ For women who have lactation difficulties, infections, or problems returning to work, these drawbacks can be substantial. Just as we are careful not to make a mother feel guilty about her decision to send her child to day care (which substantially increases the chance of acquiring infections⁶), we must ensure that she is

not made to feel guilty or inadequate about her decision not to breastfeed.

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1. Kramer MS, Chalmers B, Hodnett ED, et al, for the PROBIT Study Group. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. *JAMA*. 2001;285:413-420.
2. Report of the Task Force on the Assessment of the Scientific Evidence Relating to Infant-Feeding Practices and Infant Health. *Pediatrics*. 1984;74(suppl 4, pt 2): 579-762.
3. Habicht JP, DaVanzo J, Butz WP. Mother's milk and sewage: their interactive effects on infant mortality. *Pediatrics*. 1988;81:456-461.
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In Reply: Dr Sargent and colleagues have made 2 errors in using the results of PROBIT to estimate the benefits of breastfeeding for infants in the United States. First, we did not compare breastfeeding vs not breastfeeding (as implied by Sargent et al), nor even more prolonged and exclusive breastfeeding vs shorter and less exclusive breastfeeding. Rather, we investigated the effect of an intervention to promote longer and more exclusive breastfeeding. Our experimental intervention resulted in 2 cohorts that differed in their average breastfeeding duration and degree. As discussed in greater detail in our article, more prolonged and exclusive breastfeeding must reduce morbidity among individual infants to a far larger extent than the average reduction observed for the entire experimental group when analyzed by intention to treat.

Second, Sargent et al generalize the absolute risk reduction we observed among the Belarussian infants (4%), rather than the corresponding relative risk reduction (40%, not the 30% cited in their letter). Absolute risk reduction (also known as risk difference) is a function of both relative risk and background risk (incidence). In the United States, an average infant's risk of 1 or more episodes of gastrointestinal infection in the first year of life is probably closer to 60% (the risk we used in estimating our required sample size) than to the 11% we observed in the Belarussian control group. The 40% relative risk reduction thus translates into an absolute risk reduction among US infants of 24%, vs the 4% we observed in Belarus.

No mother should be made to feel guilty or inadequate if she is unable or unwilling to breastfeed. Our experience in Belarus, however, has convinced us that many women prefer to breastfeed if they are encouraged to do so, taught the proper positioning and techniques, and supported and helped if problems arise. Belarussian pediatricians were skeptical that we could change breastfeeding behavior in Belarus; they too cited insur-