# The Effectiveness of Motorcycle ABS in Reducing Crash Risk

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## Abstract

This presentation provides an example of how real-world data can be used to evaluate the safety-related performance of product enhancements. Included is a discussion of how consumer preferences and attitudes need to be considered in the analysis when the new feature is offered as an option rather than standard equipment.

To prevent wheel lock up (and possible loss of control and capsize) during hard braking motorcycle manufacturers have equipped motorcycles with Antilock Brake Systems (ABS) either as an option or as standard equipment. Several studies utilizing real-world crash data have been published which estimate the effectiveness of motorcycle ABS in reducing the risk of a crash based on varying assumptions. These investigations have reported mixed results.

In this study a case-control approach is used whereby crashes involving ABS- and non-ABS-equipped motorcycles are divided into five groups with a varying likelihood that ABS will affect the risk of crashes in that group. This methodology attempts to reduce any selection biases that might exist between purchasers/riders of ABS- and non-ABS-equipped motorcycles.

The results support the hypothesis that ABS is effective in reducing the crash risk in some crash types. However, it was found that the case-control approach adopted accounts for some, but likely not all factors that might influence the overall effectiveness of ABS.

## About presenter

Dr. Fowler is principal engineer with the scientific consulting firm Exponent Inc. (www.exponent.com) specializing in issues related to both on-road and off-road vehicles, including handling and stability, accident reconstruction, crash testing and risk analysis. Dr. Fowler received his B.S. and M.S. in Engineering Science from the University of Auckland, New Zealand and his Ph.D. from Caltech. During his career at Exponent, Dr. Fowler held numerous managerial responsibilities including the VP of the Vehicle Engineering Practice which included Vehicle Engineering, Biomechanics, Human Factors and Risk Analysis.

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