

To lane-split or not lane-split: Can the UC Berkeley Study help me decide?

Authors note: *I wrote the initial draft of this article shortly after reading the June 2, 2015 AMA news release referenced. I modified this article in late December of 2017 after reading what I thought were also incorrect interpretations of data released in 2017 from the FHWA Motorcycle Crash Causation Study. While I am not an expert in analysis and interpretation of research, I do try to read carefully what the research authors conclude and do not conclude about their own research. What I found with both the Berkeley lane-splitting research and the FHWA Motorcycle Crash Causation Study is that writers (sometimes writers who are professionals in the motorcyclist safety field) have drawn conclusions and published statements about their conclusions that are simply beyond the scope of the research they are reporting about.*

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Introduction

I have been riding motorcycles for 40 years. In my early days of riding I made decisions about how risky my actions were by using common sense, listening to what old bikers told me and doing as my mother said (wear your helmet). Now my decisions are driven by common sense, what trusted experts have to say and what I can learn from research. I long ago dropped “old biker myth” as a source of reliable information and to some degree replaced old biker myth with what I can learn from research.

I have learned, however, that I need read the research myself and not depend on what others tell me the research says. That certainly is the case with the UC Berkeley lane-splitting study (*Motorcycle Lane-splitting and Safety in California*, Safe Transportation Research & Education Center, University of California Berkeley, May 29, 2015.)

What others tell me the report says.

When I started to write this I had next to me the August 2015 edition of *Motorcycle Consumer News* opened to their MC Bulletins section which carried a headline from an American Motorcyclist Association news release “UC Berkeley study shows lane-splitting motorcyclists are safer in traffic.” When I first read this my brain immediately filled in the missing part of the headline sentence so I processed the headline as “UC Berkeley study shows lane-splitting motorcyclists are safer in traffic *than those who do not lane-split.*”

The headline was followed by the paragraph:

A new study by the University of California Berkeley shows that motorcyclist who split lanes in heavy traffic are significantly less likely to be struck from behind by other motorist and are less likely to suffer head or torso injuries, the American Motorcyclist Association reports.

Wow! That paragraph certainly reinforced my initial conclusion. Does this study really show lane-splitting in traffic is less risky than not lane-splitting?

There was also an article titled “*UC Berkeley Study Shows Lane-Splitting to Be Safe*” published by asphaltandrubber.com on June 3, 2015 written by Jensen Beeler which states “The big takeaway from this research is that when done reasonably, lane-splitting is just as safe as riding a motorcycle.” I don’t get this. Aren’t you riding your motorcycle when you lane-split.

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The article goes on “As such, one of the more important insights found by Rice and his team was that motorcyclists can travel up to 15 mph faster than the flow of traffic with no statistical increase in crashing.” That doesn’t seem logical - that a motorcyclist traveling 15 MPH faster than the traffic flow is no more likely to be involved in a crash than one creeping along at 1 or 2 MPH faster than the traffic flow. Did the research really show no statistical increase in crashing with increasing speed differential?

Digging into the report

When I dug into the “*Motorcycle Lane-splitting and Safety in California*” report, the first thing I discovered is that the report is an analysis of characteristics of about 6,000 collision-involved motorcyclists. All of the data is drawn from motorcyclists involved in crashes. While some riders crashed while lane-splitting and some crashed in circumstances other than lane-splitting, they all crashed. If they all crashed, how does this study conclude that in heavy traffic a motorcyclist is better off or just as well off to choose to lane split than to remain in the traffic lane?

The short answer

The study *does not* show lane-splitting to be less or equally risky to riding in the traffic lane and it *does not* show that motorcyclists can travel up to 15 MPH faster than the flow of traffic with no statistical increase in crashing. These are false conclusions and misinterpretations of the study data. To quote from the study:

The primary limitation is our lack of exposure data. To estimate how the risk of being involved in a collision changes when motorcyclists chose to lane-split, we would require information on both the lane-splitting and non-lane-splitting riding that is done by some identifiable sample of motorcyclists. The collection of these data is fraught with problems, and the current study did not attempt to collect such data. The current data set cannot be used to compare the collision risks for lane-splitting or non-lane-splitting riders.

No answer to the big question about lane-splitting

The big question riders want to know about lane-splitting is: “Is lane-splitting as safe as or safer than traveling in the traffic lane?” Asked a different way: “Do motorcyclists put themselves in a situation where the risk of crashing is higher or lower if they choose to lane-split? Sorry, the UC Berkeley study *does not* help answer that question.

What the study addresses and how riders can use the information

The two main goals of the study were (1) to compare personal, motorcycle and collision characteristics of lane-splitting with those of other collision types and (2) to compare the occurrence of head, torso and extremity injury among lane-splitting by the manner in which they were lane-splitting.

Let’s look at the second goal first. By “manner” the study means the combination of traffic speed and speed differential. The study looked at twelve combinations of traffic speed of 25, 35, 45, and 55 MPH and speed differentials of 5, 10 and 15 MPH.

The focus of the study was on the differences in injury proportions of the lane-splitting

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motorcyclists over the twelve combinations. In this part of the study the researchers made an effort to control for “potential cofounders.” In other words the researchers made the effort to account for some factors other than speed and speed differential that might contribute to the differences in the occurrence of head, torso and extremity injury among those who crashed while lane-splitting. Among the lane-splitters the researchers accounted for age, gender and helmet type. This makes sense as these three variables might very well contribute to differences in occurrence of injury. Certainly we understand that helmet type would be a factor in head injury occurrence. Accounting for these three variables allows the researchers to be more confident that their studied variables of traffic speed and speed differential were the factors that contributed to differences in the occurrence of injuries among the lane-splitting riders who crashed.

My expectation was the data would show a steady increase in the likelihood of injury with each increase in speed and speed differential. However the data reveal not much difference in injury occurrence for crash involved lane-splitting motorcyclists at all motorcycle speeds up to 50 MPH and 15 MPH speed differential (50/15). The researchers found “that motorcycle speed differential is a stronger predictor of injury than was overall traffic speed.” Speed differentials above 15 MPH were “associated with increases in the likelihood of injury of each type” (head, torso, extremity).

The bottom line here is all the riders in this study crashed. As every rider should already know, if you crash, the likelihood of getting injured is high. While the researcher’s state that “motorcyclists may not understand that lane-splitting at excessive traffic speed creates unnecessary risk” and “riders may also be unaware that the speed differential at which they lane-split is highly predictive of injury occurrence” it is hard for me to believe that even novice riders don’t understand this. Here is the question:

When they crash while lane-splitting which of the following motorcyclists is most likely to suffer an injury?

- a. A motorcyclist traveling at 30 MPH and passing cars traveling at 25 MPH
- b. A motorcyclist traveling at 60 + MPH and passing cars traveling at 25 MPH

Go ahead. Take a guess. You don’t need real life (and death) experience here to get a correct answer.

Returning to the first goal it is important to know three of the differences found between lane-splitting and non-lane-splitting motorcyclists who crashed:

- (1) lane-splitters were younger
- (2) lane splitting motorcyclists were traveling at lower speeds and
- (3) lane-splitting motorcyclists were wearing better helmets.

Remember with lane-splitting motorcyclists (goal # 1) the researchers controlled for age, gender and helmet type and the variables studied were speed and speed differential.

While the researchers collected lots of data on both lane-splitters who crashed and non-lane-splitters who crashed and they provide us the information, they made no attempt to control for any variable that might contribute to differences in injuries between lane-splitters and non-lane-splitters.

When we read in the AMA news release that “motorcyclists who split lanes in heavy traffic ... are less likely to suffer head or torso injuries” our natural conclusion is the reason for the difference is because those riders are lane-splitting. However, because the researchers have told us they didn’t attempt to collect the data necessary to answer these types of questions and they made no attempt to control for other possible contributing factors (that is other than lane-splitting vs. non-lane-splitting), the differences in injury occurrence between these two groups might very well be accounted for by the fact that lane-splitters were younger, traveling at lower speeds and wearing better helmets.

What about getting rear-ended?

Finally, it is important to briefly address the issue of rear-end collisions. Advocates of lane-splitting point out the fact that when a rider chooses to lane-split, he removes himself from a position of vulnerability to being hit from behind. The data in this study confirm that lane-splitting reduced the occurrence of being rear-ended by another vehicle by 2 percent (4.6% vs. 2.6%). That is the good news and this information was reported by the AMA as significant.

However, information clearly contained in the study (but not reported by the AMA), is that lane-splitters who crashed rear-ended another vehicle 22.7 percent more often (38.4% vs. 15.7%) than non-lane splitters. Motorcyclists might wonder, is it worth it to make a move that might reduce the already low likelihood of being rear-ended by just 2-percent but puts riders in a position where they are 22.7 percent more likely to slam into the rear of someone else. This makes me think of the 35 year old advice from H.H. Hurt Jr. “Motorcycle rider watch where you are going because at least three-quarters of the accident hazards are right in front of you. The disasters coming at the bike rider from directly behind him are only 3.2 percent. It’s best to worry about the 77.1 percent ahead, than the 3 percent behind.”

Rider take-aways

Disappointingly and contrary to some news releases and articles about “*Motorcycle-Lane-splitting and Safety in California*” does not provide motorcyclists with an assessment of the risk of lane-splitting versus choosing to remain in their lane.

Below are the take-aways I gained from this research. Readers might choose to read and study the research themselves.

1. If I crash, there is a high likelihood I will be injured
2. If I crash and I am injured, it is very possible my injuries will be serious, maybe even kill me
3. Crashing at high speeds will increase the likelihood of injury
4. Crashes happen while lane-splitting and not-lane-splitting
5. Wearing a good helmet might reduce the likelihood of suffering a head injury in a crash

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None of this information should come as any surprise. It is information all motorcyclists should already know. Lack of knowledge isn't often a contributing factor in crashing. Failure to apply what we know by using good judgment and decision making is a very real contributor to crashing.

Lane-splitting may or may not be an effective risk-reduction strategy. Lane-splitting may or may not increase the risk of riding. It is less about lane-splitting versus not-lane-splitting and more about how, in every situation, we choose to ride.