

Pelvic Injury and Motorcycle Fuel Tank Design

by
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In head-on, front-end collisions a rider is often “thrown directly forward against the high riding fuel tank, sustaining a direct blow to the anterior pelvis and soft tissues.” The case report *Crotch Rocket Pelvic Fractures* goes on to say “the associated injuries can be devastating. Pelvic fractures, testicular rupture, urethral and bladder injuries, as well as other injuries may result from high velocity trauma. In addition to the pelvic injury, our patient had extensive scrotal damage with both testes severely traumatized and displaced out of the scrotum.”

It seems to me the fact that research tells us motorcycle fuel tank design is directly linked to pelvic injury is a topic the motorcyclist safety community just doesn't know about or actively avoids addressing. Years ago I might have consulted “old bikers” for information but these days I like beginning with the available research. An article summarizing the fuel tank design/pelvic injury research and links to a dozen research studies on the topic can be accessed at <http://smarter-usa.org/research/design-equipment/>.

While I have been involved in motorcyclist safety since 1986, this topic came to my initial attention in 2006. The credit for bringing the issue to the attention of motorcyclists, including me, goes to the late Wendy Moon. Known in the motorcycle safety community as Moonrider, she authored a blog she established in 2005. Moon wrote an article on the issue published in the July 2006 Motorcycle Consumer News. Moon's article in MCN examines the tank design/pelvic injury issue in depth.

But that was 2006 and this is 2018. What happened? I can only conclude the topic didn't seem within my bailiwick as a RiderCoach Trainer and rider training program manager. Now I am almost retired from those responsibilities and focused on managing SMARTER, a 501c3 non-profit that wants motorcycle riders, motorcyclist safety advocates and policy decision makers to make responsible decisions based on factual knowledge and the conclusions of quality research. Therefore the association I manage has a mission “to gather, examine, catalogue, share, post and distribute motorcyclist safety factual information and research and to advocate for the use of such knowledge as the basis of decisions (www.smarter-usa.org). Given that mission, I regularly work to gather, evaluate and post research on motorcyclist safety topics. About a year ago, one of our members asked me “Where is the research on tank design? Why no section on your web site about that subject?” That member was Jon DelVecchio, whom I quote at the end of this article.

Motorcyclist safety, to me, is much more than rider training and motorist awareness. It certainly needs to be because the research does not provide any real evidence that either of these usual countermeasures do anything to reduce crash risk (see the section on these subjects at <http://smarter-usa.org/research/>). In addition, the motorcyclist safety community certainly must include the manufacturers, in addition to all those involved in training, licensing and law enforcement. The research on tank design/pelvic injury spans five decades but I am not aware of any discussion about the topic at the many conferences I have attended during my four decades

in this business nor have I found any evidence that manufacturers have made efforts to address the issue.

So, I invite readers to read the research and consider what we (motorcyclist safety advocates) can and should do to address this issue. I agree with what my colleague Jon DelVecchio told me when he encouraged me to get this research posted on our web site:

Consumers are unaware of this danger and therefore cannot factor it in their purchase decisions. Motorcycle manufacturers and safety advocates are certainly aware of research pointing to fuel tank threats, but have seemingly done nothing to improve designs to mitigate injuries. This is not a difficult problem to solve. Simple modifications in materials, shapes and even relocating tanks can have a large impact with few resources. To fulfill our obligation to the motorcycling community, we must have conversations about this issue at our conferences and ask manufacturers to take steps to improve their designs. We shouldn't just ignore a problem that quality research has identified.

References

Crotch Rocket Pelvic Fractures. Conor Hurson, Denis Collins, John P McElwain. *Injury Extra*, Volume 35, Issue 2, February 2004, Pages 17–19.

Dangerous Designs? Read this, and you'll never look at a motorcycle the same way again. *Motorcycle Consumer News*, Volume 37, Number 7, July 2006, Pages 24-29.

Street Skills LLC. Jon DelVecchio, <http://streetskills.net/motorcycle-crash-ratings/>.

For an author biography see <http://smarter-usa.org/about-smarter/board-of-directors/>