A Brief Discussion About Motorcycle Dynamics

“But I Steered Left!!!!!”
History of Jerry Hilborn
My Projects/Interests

1985 Sportster

From this...
And this...
To This!
Addressing the Oil Leak
Current Project 1940 Indian Sport Scout
Hopefully Someday
Not Possible Without My Supportive Wife...
What is a Motorcycle?
Dictionary Definition:

motorcycle
ˈmōtərˌsīkəl/
noun
noun: motorcycle; plural noun: motorcycles
1. a two-wheeled vehicle that is powered by a motor and has no pedals
Michigan Vehicle Code:

257.31 “Motorcycle” defined.

“Motorcycle” means every motor vehicle having a saddle or seat for the use of the rider and designed to travel on not more than 3 wheels in contact with the ground but excluding a tractor.

History: 1949, Act 300, Eff. Sept. 23, 1949
I Like This One...

Motorcycles are articulated, inline vehicles with a single track, that lack inherent static balance.

(They tip over if not held up by rider or kickstand when stationary)
Friction, Passenger Vehicle

Tire Marks, Delta County Style

Critical Speed Scuff
Other Passenger Vehicle Methodology

Damage Profiles

EDR
Impacts & Friction
Wheelbase Deformation

Bent Forks

“Shortened “
“I’d Buy That...”
Analysis of Road Rash
Motorcycle Dynamics

High Side

![Motorcycle "High Side"](image)

Airborne

![Motorcycle Accident Investigation](image)

Courtesy of Al Baxter
Let’s Talk About Countersteering…

But I turned **left**!

And went **right**!
Let’s Talk About Gyroscopic Precession

Fig. 2

Gyroscopic precession: When a spinning wheel as shown is turned to the left, it tilts strongly to the right, but when tilted to the left it turns to the left.

Plane of Force

Resultant Force

Initial Force for Right Turn

Applied Force
Time For a Demonstration!

[Image: How to get rid of an olive pit: Toss olive pit (A) into funnel (B). Midget pool player (C) shoots pit into hat of departing guest (D).]
We Don’t Need No Stinkin’ Brakes...
My Suggestion?

Honor him by taking these... ...and put them here...
Questions?
THANK YOU!!