

OH OOPS, what happened to my center of gravity!

(updated 01/16/222 with curve pictures for engineer request - (NO I am not measuring!)

(my property, my rules so you get handed this for landing in my territory)

You were lucky - You need to learn some engineering. Be glad you're OK - I am glad you're OK!
Opinions received that are pragmatic/safety/engineering are listed last.

This has now grown from my handout, so you get to read it all. The credit goes to these car manufactures for your being okay but even they can only do so much!



12/2021 roof



12/2021Acura Integra Roof



sport edition 02/2021 flat landed



Jan 13th 2022- 360 And end of the 360 -

Curve + SPEED + Uneven-road pavement and bad road shoulder = Be glad you had on your seatbelt, airbags and that the car manufactures are building safer cars.

(http://www.thecartech.com/subjects/auto_eng2/CG_and_Moment_Arm.htm) EXCERPT

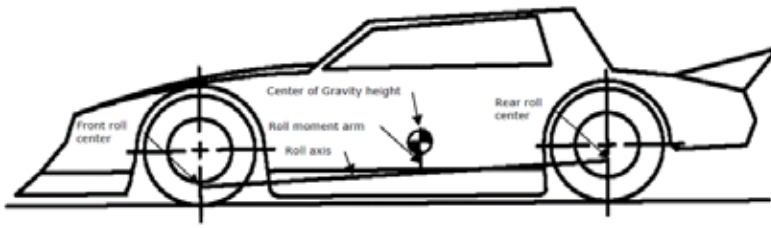
The Center of Gravity, often abbreviated CG, is the point on an object at which it is in perfect balance. Why should you care about the Center of Gravity in racing? The higher a car's center of gravity, the easier it is for outside forces to move it laterally on the track

We have heard of the *SUV Rollover effect*, where the high center of gravity in conjunction with a narrow wheelbase makes it much easier for an SUV to rollover in an accident.

You will note that you don't usually see a lot of accidents where a Mazda Miata or another small sports car has rolled (unless extremely high speeds or driver stupidity is involved). Why not?

The ideal race car would have a CG as low as possible — hopefully just bare inches above the track/road. This would help it hold as it speeds around the curves and would help to keep any lifting forces from moving the car up, thus losing traction.

Driving stock cars depends on a number of factors. Without an appropriately balanced center of gravity, the car will not be able to move smoothly around a racetrack. The following diagram displays this concept ...



From me, "you can blame your car but GO WATCH YOUTUBE - Google - be glad you walked away from it, this time! **Roll-Over, Spin-outs, crashing through fences, all involve too much speed. The skid marks+stop distance+what didn't slow the car like a fence is not rocket science"**

The roll axis is the theoretical line, which connects the front roll center to the rear roll center. The roll centers are the points along the axes where the car pivots left and right and up and down when it corners. The roll axis is the line about which the car rolls when you turn. One would hope that for the most part these roll centers are close to the middle of the front and rear axes. If not, then the car will be sliding one way or another as the weight shifts unequally about the roll axis.

Now the cornering forces affect the car at its center of gravity (CG). The distance between the roll axis and the center of gravity is called the Roll Moment Arm. This distance is what determines how much weight is transferred in cornering.

Opinion received 1/15/2022 - (retired crash engineer) The article is correct. However, a car with a low center of gravity is difficult to get into. You would have to get down on your hands and knees and crawl into it. You step over the frame and into the seat of a formula F1 racing car (think go-cart). However, even these will flip if the wheel goes off the road and overcorrected going at 200 mph.

What's causing the crash at your place is that the right wheel is leaving the road. The driver says "OH SHIT" and then quickly turns the steering wheel left to get back onto the road. This starts the instability that flips the car. See if someone wants to do a LS-Dyna simulation of this. The correct procedure is to slowly apply brakes and slow down. Then, drive back onto the road. I think only once I did this. Most of the time you don't want to hit the gully coming up and quickly turn the wheel to get the car back on the road. Drive or walk down the road and try to see where they are driving off. Then look for a ditch, pot hole just off the right side they are trying to avoid once the right wheel leaves the road.

Answer 1/15/2022 - Art, J agreed with you so I tried to find this pothole that two of them said they hit - road has no potholes, but the side of the road has some wear/tear. They didn't really know what happened but they hit "a pot hole" and lost control and went bat guano all over.

<p>These tires are from the 360 - the accidents start by that tree</p>	<p>A - closest to the drive</p>	<p>B - closer to the white line and closer to the curve they come around.</p>

**The Curve where it all went bat guano crazy all over the road.
Glad you had on seatbelt, airbags deployed and car manufacturers have safety features**

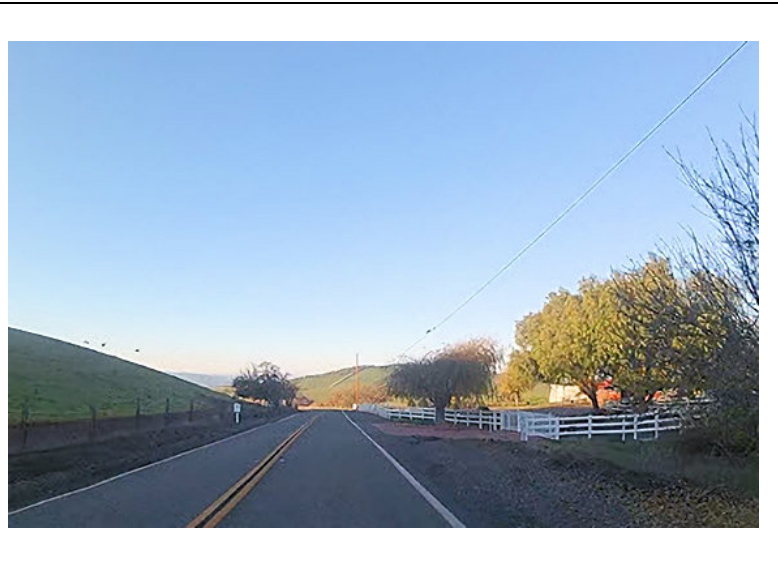
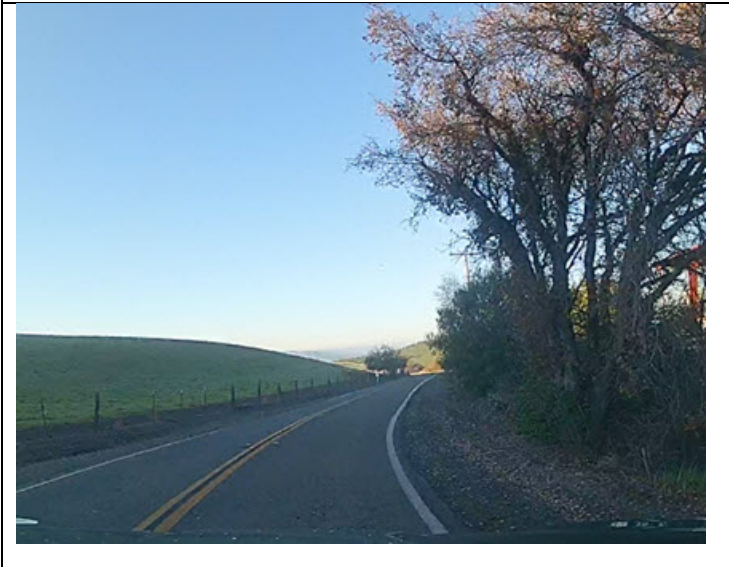
Oh look, a curve! If I speed at 60 miles per hour I can go 88 feet in once second - my tire will go off the road, since I'll hug a right curve. I have no clue what's on the other side, or how the road, shoulder, pavement is.

OH shit - I hit a pot hole? Hmm, maybe I took that curve to fast and the tire went off the road? Is that how I lost control all the way past the next driveway?
Quiz: A) is it the road. B) Am I driving to fast? C) Do I have total control of my vehicle?



And here is where you just go bat Guano Crazy all down the road till you just roll over, crash through the fence into my yard, crash the opposite into the other pasture, OR you do a 360 past my drive.

OH WOW a straight shot - led me let me speed and crash on the next curve, since I missed crashing the last one!



Disclaimer - This is not in any manner assigning fault to any party, or in any manner determining what actually transpired. I can say that speed had to play somewhat of factor since it was a dry day, no wet road.