

**Driver's Ed. Education**  
**A Series of Specifics for Success**  
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**Article #3 – Car Feel**  
**Tires and the Seat of your Pants**  
**Learning the old "Toss & Catch"**

Let's talk about the ultimate characteristic that sets a really skilled driver apart from the norm.

The fastest drivers all share certain attributes to one degree or another; fearlessness, "natural ability", concentration, experience, good equipment, etc. But there is one characteristic that sets the Schumacher's and the Senna's of this world apart: FEEL. This is not an exclusive trait, and it can be learned (to varying degrees) by anyone; the level of one's drive and goals notwithstanding. This is the trait we are ultimately trying to develop in ourselves, as without it, a driver will never be as one with his or her means of conveyance and the stretch of road in question.

Do some people inherently have a better sense of feel than others? Good question. Perhaps it would be more accurate to state that certain individuals possess a higher innate sensibility where the dynamics of road feel are concerned. In the end, anyone can improve in this regard. Some just have to try harder. Improved feel for the road also generally leads to a heightened sense of overall awareness. That's really what Driver's Ed. is all about.

You might have heard it



**“If you don’t have your chops... ..you’re just wasting my time!”**

said that a driver's most sensitive organ must be his or her backside. This is not as flippant as it may initially sound. One's nether regions, in conjunction with the ears, eyes, hands, and a healthy dose of intuition born of experience, make up the proverbial "seat of the pants" feel that we are striving for. Without it, one can never progress beyond merely driving well mechanically. How can we accelerate our acquisition of this all-important sense?

*At this juncture* I want to take turn into the pit lane and discuss a basic component of feel, and lend some

advice for the novice Driver's Ed. student. Let's talk tires. Tires are a big part of what we do on the track. I might imagine that drivers spend more time discussing tires and their effective deployment than any other topic. This has the unfortunate tendency of making people, particularly the novice, believe that tires are the most important part of the driving equation. If one has progressed to the higher levels of performance driving, then tires are indeed a priority. However, to start thinking about the "fastest tire" before one has learned the how and why of their usage will actually retard ones learning of the most important lessons; mainly that of feel and car control.

As previously stated, the goal of Driver's Ed. is to teach you car control. You will coincidentally develop a greater sense of feel, and a heightened sense of what the car is doing and what it needs in order to go faster in a smoother and safer fashion. There are many things that contribute to the learning of feel; how deeply padded your seats are, how stiff the suspension, whether your tires squeal a lot, etc. However, how much cornering grip your tires have is the biggest factor.

Unless one is Idiot Savant, one cannot play Chopin without learning where the notes are on the keyboard. **You can't learn to drive well by going fast first!** You need to learn what to do, and what the car will do, gradually, and the easiest most effective way to accomplish this is to do it at a speed that will allow you to access your and your car's limits repeatedly. A speed where you reach the abyss... and learn through experience how to return from it safely. A speed that won't land you in deep do-do without your knowing how to wield the shovel first! It's in the tires, you know?

R-compound tires are great fun and allow you to really fly, but you have to earn those wings. Below the R-tire's limits, they will lull you into a false sense of security and make up for many inappropriate driving habits. When you push it, the super high grip of these tires is accompanied by a more **sudden loss** of that grip; they are far less forgiving than street tires. On top of that, if you've got the tires without the talent, you won't have the ingrained instinctual reactions available to help you deal with sudden cornering distress.

Think of some of the great drivers: A.J Foyt, Mario Andretti, Jeff Gordon. They cut their teeth on dirt tracks where sliding is control. Most every F-1 and C.A.R.T. pilóte has at least some karting experience, the better the driver, likely the more karting he's done. Learning with a car that moves around a lot will speed your ascension into the ranks of the skilled drivers. Street tires allow a car to slide around a lot compared to their R-compound siblings. The lessons learned while sliding about are as important to the equation as making sure the car has gas! If you've been coveting a set of R tires... wait. Learn how to boil water before you try your hand at real cooking!

So, we need car feel to drive well. How do we get it? Do realize at this point, if you have not already, that everything the car does is a result of you. Without you the car just sits there, but when it is moving, everything it does is a result of your input. Car feel boils down to sensing pressure, acceleration, vibration, and sound. You will be combining these elements in the Sorcerer's Stew that is driving well and swiftly.

**Sound** obviously comes to your ears. Listening to the rev of the engine, for instance, is crucial to knowing whether you got a good "blip" of throttle to achieve a seamless heel & toe downshift. No one I know has time to look at the tach to see this! (Incidentally, that is about the only reason to have a noisier exhaust!) You can also hear the tires level of protest as you move the car through a corner. Exceeding the tires abilities (slip angle) is what turns that tell-tale screech into a howl, and paying attention to this will allow you to ease the steering as needed to increase grip and also decrease slide losses, which increases forward momentum.

**Pressure and vibration** are physical sensations you interpret with your body. Pressure can be felt in your rear end and rib cage as driving forces applied to the car push you around in the seat. You should endeavor to place yourself in the role of the tires, springs, and shocks, and interpret these forces felt by your body as the same forces you are subjecting these components to.

Any input that tosses the car sideways abruptly will affect your ribs similarly to these components. If you feel less pressure against the seat, then you have also loaded the suspension less, and if you can make the corner successfully at these settings, then the car will be very stable and you will be leaving some further potential in reserve in case something happens that was not anticipated. Also, once this reserve has been established through consistent repetition, it will allow you to progress further by converting it into increased speed in that corner in the future!

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People have a habit of applying the word **acceleration** only to forward motion. In reality, acceleration occurs in all directions. Acceleration can be charted in both horizontal and vertical planes, and in both positive and negative values. Throttle applied equals positive acceleration. Brakes give negative acceleration. Turning to the right creates accelerative inertia to the *left*, and vice versa. To more easily picture this, envision a large bowl affixed to your hood with a tennis ball in it. Think... Get the picture?

If you had enough horsepower, romping on the throttle would send the ball into your windshield. Conversely, jumping on the brakes would send it bouncing down the road in front of you. Turning abruptly would give the same results to the side. If you combine two inputs together, you will see the ball travel in a combined longitudinal (front-to-back) and latitudinal

(side-to-side) manner. Equal amounts of brake and right turn will send the ball off somewhere approaching 45° to the left.

Mentally become one with the tires again for a moment. A tire is like anything else that is active; it can only do so much. If you are eating a sandwich while trying to answer your e-mail, chances are you are going to spill something on your keyboard! If a tire is asked to turn, fine. Brake? Fine too. Brake and turn at the same time? By subjecting the tire to both simultaneously, you are decreasing the amount of either task that it can handle. Exceed 100% in any combination, and you just created a slide. 50/50, 60/40, 90/10? Fine. 90/20? SCREEEEECH!

As a student, you likely will be tentative and inconsistent with your control inputs, and the astute instructor will pick on you if you make "hunting inputs" to the steering or throttle that have his/her head bobbing all over the place or that make the car twitch or wiggle. While these inputs do not necessarily cause problems at a novice-to-intermediate pace, they most likely will in the future when you are going faster, *and are non-productive in any event*. It is best to train yourself correctly in the beginning to notice such things, and remove them, so you don't have to try and *unlearn* these bad habits later!

Of course it is entirely natural to be unsure of where and how hard to brake, and how much entry speed, steering input, and what turn-in point to use. It is a huge game of When & How Much. But do be aware that as you gain confidence and experience in these matters, the goal is to then decrease the number of inputs to the controls.

Also, do be aware that while you are figuring out the baffling When & How Much equation, you also need to pay attention to what your inputs are doing to the car. If this is eluding you, take a lap or so, forget about perfecting the line, and perfect your sensory perception. Pay attention to what you are doing **TOO** the car, not just *with* it.

If you can put the mechanical together with the sensory, you'll be saying...

**"Right Now, This Much, and..."**

**...That Felt Really Good!!**

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**by John L. Hajny**

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**I ask you to please abide by this request.**

**Thank you.**