

Fact or Fable? ABS Brakes Will Shorten Your Stopping Distance Under All Conditions

This is a Fable. On dry or wet pavement, anti-lock brake systems (ABS) might stop you sooner. On loose gravel, ice, and unpacked snow, it is a different story according to the [National Highway Traffic Safety Administration \(NHTSA\)](#).

Anti-lock braking systems began widespread adoption beginning with the 1985 Ford Granada. According to Wikipedia, a typical ABS is composed of a central electronic unit, four speed sensors (one for each wheel), and two or more hydraulic valves on the brake circuit. The electronic unit constantly monitors the rotation speed of each wheel. When it senses that any number of wheels are rotating considerably slower than the others (a condition that will bring it to lock-up) it moves the valves to decrease the pressure on the braking circuit, effectively reducing the braking force on that wheel. Wheel(s) then turn faster and when they turn too fast, the force is reapplied. This process is repeated continuously, and this causes the characteristic pulsing feel through the brake pedal.



Maximum braking effect is usually achieved with the wheels on the limit of friction. Applying pressure to brakes in cars without ABS while on sheet ice will usually throw you into a skid. This is caused by the wheels locking up. When the front wheels stop rotating, you lose the ability to steer your vehicle. If there is any roughness to the ice surface or light snow on the ice, however, locked wheels will usually stop the car sooner than ABS brakes. Even though static friction (of rolling tires) is greater than sliding friction (of locked tires) on pavement, locked tires tend to bite into the surface of rough ice and snow wedges build up at the edge of a tire, slowing the vehicle, according to [an article in CanadianDriver magazine](#). An ABS system does not like non-rotating wheels. Because ABS works by releasing the brakes as the wheels break traction, ABS brakes will take longer to stop a vehicle on rough or snow covered ice or loose gravel where traction is very low. But you will still be able to steer the vehicle, allowing you the chance to steer out of trouble.

On smooth, clear sheet ice (black/glare ice), all bets are off. On sheet ice, your best strategy is to stay off the brakes and steer straight ahead, according to the American Automobile Association (AAA). Always leave plenty of space between your car and the car ahead of you. The AAA recommends keeping at least one car length distance for every ten miles per hour of speed in good weather conditions and twice that in snowy conditions. ABS brakes are a great technology, but it is no substitute for sound judgment.

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