

**GET A GRIP**

January 30, 2008

**THE SHOW****Don't rent a car this February without winter tires. Oh, wait...**

If you're like most people in this country, you don't have winter tires on your car right now. You bought "all-season" tires, and you figured all-season meant spring, summer, fall and winter, and so now you drive on the same set whether it's plus-thirty or minus-fifteen.

You would probably be surprised to learn that "all season" tires stiffen up considerably at low temperatures, which makes them bad at gripping and good at sliding. That means that on ice your car will travel much further after you hit the brakes than it would have if you were on winter tires. And that can mean the difference between a near miss and a crash.

You would probably also be surprised to learn that, outside Quebec (where they will shortly be required by law), there is no way to rent a car with winter tires. Not in Ontario, not in Alberta, and not even in the snowy mountains of British Columbia. In this report, we ask two race-car drivers to do some test drives and see first-hand the difference tires can make to road safety. And Wendy Mesley asks why the people who market tires still use the phrase "all season."

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[160 Comments](#) |[E-mail](#) |[Share on Facebook](#) |[Save on del.icio.us](#) |[Post to Digg](#)**Your winter tire questions answered**

Last week's show about winter tires drew many comments and emails from viewers. This week, Wendy Mesley took your questions to professional driver Andrew Comrie-Picard. Here are his answers.

**Q.** The demonstration showed winter tires in snow. Are winter tires better on ice (especially black ice)?

**A.** Yes, we would have seen an even greater advantage for the winter tires on ice because it's the tire's compound that adheres to the surface of the ice. That's something all season tires don't have.

**Q.** How do winter tires perform on pavement, when there is no snow or ice?

**A.** The whole point of winter tires is the soft rubber compound, so when it gets cold, they stay supple. They stay more like foam rubber than a hockey puck. You can imagine on a dry piece of pavement when it's cold out, push a hockey puck across the surface, it's still pretty hard rubber and doesn't really adhere to the surface, whereas a foam rubber sort of digs in and grabs the surface better. When it's cold, you're always going to get better traction on a winter tire. In fact, even in summer on a dry pavement, you'll get better traction on a winter tire than you would with an all season tire.

**Q.** Are "all weather" tires winter tires?

**A.** The all weather tire is another designation that's thrown around especially by a couple of brand names. It's a tire that's just soft enough or just pliable enough to qualify as a winter tire that's in the compound of the tread blocks, but designed to be used all year long, more like an all season. The problem is that it's not perfect at either thing. It's still too hard to be fully optimized as a winter tire. You're better off getting a pure winter tire.

**Q.** Do you really need four winter tires, or can you get by with just two?

**A.** That's a very bad idea. You're almost creating a more dangerous scenario by going to only two winter tires instead of four, because you're creating an inherent handling imbalance. You've got great traction on one end and poor traction on the other. For example, take a front wheel drive car and put winter tires on the front, so you can accelerate better. Under braking weight transfers to the front, so you get good traction on the front, and you're still able to steer with those good winter tires you have on the front. But if you still have all seasons on the back, those brakes lock up and suddenly the car's inherently unstable. It can spin off the road backwards, or worse hit something else. Always put on four winter tires.

**Q.** Winter tires are made of softer rubber. Doesn't that mean they will get worn down quickly?

**A.** No. That's a great thing about winter tires. If you use them in the winter, and use them when it's cold, they don't wear very quickly at all. Only when the temperature is higher, and by high I mean 5 or 7 celsius, do they start to wear away at an unacceptably quick rate. As long as it's cold out, especially if it's wet out, especially if there's ice or snow, they wear very little at all, and they'll last a lot of seasons.

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## What to remember about winter tires

Buying tires can be confusing, with dozens of brands and types available. Here are a few things to keep in mind:

Look for this mountain snowflake icon. This indicates a winter tire designed to retain traction at low temperatures.



Remember that "M & S" does NOT indicate a winter tire, even though it stands for "mud and snow."

A sport-utility vehicle is not a substitute for winter tires. Four-wheel drive only helps when you're accelerating or trying to get out of a snowbank. (Remember, all cars have four-wheel brakes.) Also, SUVs are much heavier than cars, and their extra momentum can make them much tougher to stop..

Anti-lock braking and Electronic Stability Control are not substitutes for winter tires. Having a computer pump the brakes is of minimal value if your tires are too hard to grip the ice.

Two winter tires are not enough; you need one on each wheel. Installing two winter tires at the front of a front-wheel drive car is actually a significant safety hazard.

Use winter tires whenever the temperature is 7 degrees celsius or lower.

Remember that, even though winter tires cost money, the purchase price is offset by the fact you're going to go twice as far on the tires you own. You'll have two sets of tires, remember.

## Links to more information

There is a wealth of information online about tires and tire safety. Here are some sites to check out.

- **Be Tire Smart** is a website operated by the Rubber Association of Canada. It's full of detail about tires, with a particular focus on winter tires and tires in relation to road safety. (Be sure to watch the "Winter Tire Demonstration" video.) The site also contains a list of winter tires sold in Canada, broken down by manufacturer.
- **Buying winter tires: a few reference points** is a detailed set of tips for tire shopping from the Quebec branch of the CAA.
- Canadian Driver Magazine has **tests and reviews of more than a dozen winter tires** on its site.
- Also at Canadian Driver, **Winter traction and visibility essentials** is a checklist to use in getting ready for winter driving. It also serves as a quick Winter Tires 101, with photos showing the sipes (small grooves) that give winter tires a spongier gripping surface.
- **Riding on air** is a quick guide to winter tires and tire buying from Transport Canada. Look through the list of links at the left of the page for all kinds of detail on tire maintenance, inflation and inspection.
- The Canada Safety Council also maintains **a set of guidelines for the safe use of winter tires**.

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## For those interested in the chemistry

The rubber compounds that keep winter tires elastic and "grippy" in cold weather are the products of extensive research and development. Explaining the complex reactions behind the on-road performance is obviously beyond the scope of this website, but if you're interested in further reading, here are some pointers.

**An article from a car enthusiast website** outlines a new kind of winter tire, with rubber that incorporates canola oil as a softening agent.

**A US patent filing** explains the use of silica compounds to enhance traction and elasticity in tires.

If you're interested in significant further reading, the Patentstorm website is a rich source of information about rubber technology. Try **searching with the word "tire."**

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