

BMMC Rider Training

Staying Warm During Cold Weather Riding



The cold weather riding season is slowly creeping up on us. Here are some thoughts that might make your riding more comfortable and safer.

I. Why *do* we get cold?

The main reason is that when riding a motorcycle, even if well dressed, we generate very little heat while sitting still. Physical exertion or movement generates heat. Sitting still on a motorcycle does not.



When we start off on a cold weather ride, we feel warm and comfortable. As the ride goes on we feel progressively colder. That's because our bodies are not generating heat to counter the cold. Think of our body temperature regulator as a motorcycle's electrical system (charging vs. discharging) that runs off a full battery but has no external charging source (i.e. an alternator).



You start with a fully charged battery. How long your battery charge will last depends on the size of the draw against the charge and how long these draws last. The higher the draw the shorter the time the battery charge will last. Fewer or smaller draws will allow the charge to last longer. The same thing happens when we ride in cold weather. We start off feeling comfortable. As we ride, we will be subject to heat loss (from wind chill).

Generally speaking, how long we last before we feel cold depends on how cold the temperature is, how fast we're riding (wind chill), and how long we're in the saddle.

Since we have no external heat source (like the bike with no alternator) our body's temperature regulation is continuously being drawn upon. Just like the battery voltage continuously decreasing, our body will get progressively cooler.

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II. Dressing Properly:

Dressing warmly will slow down the heat loss (i.e. cooling effect). But you will still be drawing on your "charge". The only difference is that it will take a little longer for you to feel cold. But if the ride is long enough, you will feel cold because every inch of exposed skin is a heat radiator that works on radiator. Your neck, ears, face lower edge of your forehead where In addition, with each exhaled humidity as well as body heat. With cooling your system. In fact, if you eventually feel cold due to the draw are not moving around to counteract this heat loss, you are sitting perfectly still while exposed to a constant, heat sucking, cold windblast.



the same principle as your motorcycle's (chin, cheeks, nose, eyes), even the the helmet stops all act as heat radiators. breath you are losing close to 100% each cold breath you take, you are do nothing else but breathe, you will on your system. Keep in mind that you

In addition, there often is cold leakage through your clothing. Cold wind (i.e. 60mph and more) can penetrate some fabrics and zippers. Fabric that is essentially windproof at lower airspeeds can become permeable under the pressure of wind. Providing a *wind-proof barrier* is essential.

If you ride long enough with no outside source of heat, you will get cold. It's only a question of time. This is not only a comfort issue; it's a safety issue, too. A cold and tense rider is not a safe rider. Situational awareness is decreased; thinking slows down, as do reflexes. Not good. In addition, a tense rider expends more energy, further contributing to the downward spiral.

Going back to the example of a motorcycle's charging vs. discharging electrical system, what we need is an external power source to replace the charge lost in our "battery". We need the equivalent of an alternator. For our purposes, that means the use of **heated clothing** to replace lost body heat.

How much heat?

- a. A heated vest or other type of heated clothing is very effective at replacing lost body heat, but how much heat do you really need? In fact we need much less than we might think we need, and we need it distributed evenly.
- b. Heated clothing is basically an external heat source. Its effectiveness will depend on our skin's ability to absorb and transfer this heat to our deeper tissues and muscles. The problem is that our skin can only transfer heat at a certain rate. If we apply more, the skin exceeds its ability to transfer and it burns.
- c. So, the answer to how much heat is required from a heated garment is: Adequate levels of heat, as much as you can handle, but distributed over a greater surface will be more effective, and more comfortable, than higher but more localized lev-



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els. It's all a question of rate of absorption. The ideal, is a heated garment set on low simmer that soothingly replaces lost body heat.

To be most effective, the use of heated clothing should be just one part of a cold weather management system. Using heated clothing (heated vest, heated jacket liner or jacket, heated pants, etc.) without paying attention to plugging cold air leaks would be like a friend complaining that his furnace is not producing enough heat in a house full of cold-air drafts. Wouldn't it make more sense to first plug the leaks than to increase the furnace capacity? The same thing happens when we ride. If you are riding in the cold with a textile jacket, cold is probably leaking through. The goal is to seal out the cold and seal in the warmth.

Two-Part System:

When riding in cold weather, use a two-part system, an **external wind barrier** and an **internal wind barrier**. This means dressing in layers. Each layer has a specific function and understanding how these layers work can extend your riding season and your comfort

From the outside, in:

- a. *Weatherproof Layer:* This layer is solely responsible for keeping the weather out and it's essential that these garments be windproof. Try wearing your rain jacket *over* your riding jacket. This provides a wind barrier and cuts down enormously on cold air leaking in. Under that wear a good cold-weather protective riding jacket.



- b. *Insulating Layer:* Under your riding jacket, wear another wind stopping layer. This protects the microclimate next to your skin. The purpose of this insulating layer is to keep warm air close to your body (keeping the body heat from migrating out towards the colder jacket), and the cold air away. Low-tech wool and high-tech synthetic fleece are the best materials for this layer.
- c. *Base Layer:* The electric vest or heated jacket liner is then worn over a "wicking" material turtleneck shirt. This base layer garment should wick moisture away from the body so it can evaporate where it won't rob your body of warmth. Made of silk, polyester or other synthetic materials, the fit should be snug and hug your body. (Cotton is probably the worst fabric to wear and does not qualify as a wicking layer. It may be comfortable when dry but will make you miserable if it's damp.)

Using this system should allow you to use lower settings on your heated clothing. If you find you are using more than about 50% of your available power setting it may be time to add a fleece or similar top over your heated clothing.

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Note: If you're ever caught without all the necessary gear and find yourself shivering, pick up a newspaper and a plastic bag. Shove the paper down your jacket and wrap your neck with the plastic bag, then grab a hot cup of coffee. That should make the ride home at least bearable.

III. Other considerations:

- a. *Gloves:* Use the layering principle for your gloves, too. A silk or synthetic layer will wick, and many gloves come with an insulated inner layer. Make sure you can cinch your sleeves and/or have gauntlet style gloves to keep the wind out. Heated handgrips help also.



- b. *Boots:* Again, wicking socks will keep your feet warmer. Pants that will cinch around your ankles will keep the weather out. Having a lower fairing on your bike to help block the wind works wonders.

- c. *Helmet:* A full-face helmet helps to cover exposed areas, and a neck gator or balaclava/ski mask really helps to keep the wind out and the head warm.



- d. *Lower Extremities:* Don't forget about the other half of your body. Rain pants and good riding chaps work well to keep the cold wind out. Under these wear a good riding pant (e.g. armored jeans, Cordova pants, etc.). Next to your skin should be a wicking type material liner (e.g. silk or Under Armor) covered by heated leg coverings. Again, cotton does not wick so avoid it if at all possible.



- e. *Shivering:* Once you start shivering, try to find a place to stop and thaw out. Shivering is proof that you are not dressed warm enough and your core temperature has fallen below 97° F. Riding any further will continue to rob your body of heat. If your core temperature gets any colder, your concentration will diminish, your reactions will slow and your motor skills will become clumsy and imprecise.

So, you see, there's really no excuse for being cold as long as you are prepared for it and know your limits. Riding in the cold can be a great exhilarating experience.

Hope this helps.