Winter Riding Tips – Dressing for Cold

Legs and Torso - Layering

Cycling in winter really just means applying what we already know about cycling in summer. We know that in summer we use a layered system to keep us comfortable. It is vital to understand that **it is not the fabric or fibre that insulates** (Hollowfill™ might be the only exception to this) it is the dead air spaces around the fibres that insulates. If you are hungry, dehydrated, sick, or have circulatory deficiencies all the insulation in the world will still mean that you will be uncomfortable and will be prone to frostbite. If that is the case, you absolutely must have external sources of heat to keep you comfortable. Fortunately, electrically heated products are becoming more and more available, and prices are dropping.

Your layering system consists of:

1. A **base layer** that is very close fitting. This is not the layer that keeps you warm, even though in a secondary way it helps our second layer do its job. This layer is designed to pull moisture off the skin and transport it to (and through) the mid-layer to keep us comfortable. Usually this layer has a brushed (fuzzy) interior finish and a smooth outer surface. Base layers generally come in 3 weights or thicknesses – silk weight, mid-weight, and expedition. Since we are actively burning quite a few calories we will likely never need any more than silk weight. Base layers are normally made from **synthetics such as polyester or polypropylene**, or **natural yarns like merino wool**. Many manufacturers create blends to try and capture the advantages of both fabrics. 100% merino wool is not very durable and so benefits from being blended with polyester. This also improves merino's moisture wicking ability. Synthetics have superior moisture wicking ability but suffer from a condition where bacteria from our perspiration gets trapped in the fibres and so tend to get very stinky and it is quite difficult to get the bacteria out in regular laundry detergents. Enzyme type cleaners solve this issue. Merino wool does not suffer nearly as bad from "sweat funk" so again a blend of merino and synthetics helps. **DO NOT wear cotton "long underwear"!** Cotton works great in the tropics to cool you because it takes forever to dry – not something you want in a cold climate.
2. A **mid-layer** can be made up of a single garment or several garments, each of a different weight. This is the layer that keeps you warm - it is your insulating layer. By using several garments of different weights, you can adjust how much insulation you need by swapping out into different combinations until you find the right amount of insulation to keep you comfortable. So, this layer can consist of fleeces, knitted garments and fibrefill products. Avoid using a down product though, as down tends to absorb moisture and it can be hard to get it dry again. Once damp, down clumps or mats reducing its insulation to virtually zero. Synthetic fibre fill products work much better, but your shell (outer layer) must be fitted so as not to compress the fibrefill.
3. The **hard shell** is the layer that keeps your insulation layer from getting wet from precipitation. Products for this layer are called "waterproof breathables" in the outdoor industry. These products are laminations of a face fabric, a membrane and (optionally) an inner liner. It is the job of the membrane (Gore-Tex™, Entrant™, The Northface, Futurelight™, e-Vent™, Schoeller c_change™, and Pertex Shield™ are good examples) to make the shell waterproof and breathable. A good way to tell if a shell is waterproof breathable is to look to see if the membrane is seams are sealed. That can sometimes be difficult to determine on products that are lined.
   It is critical to keep the face fabric water repellent because if water sheets on the face fabric breathability goes out the window. This is accomplished using durable water repellent (DWR) products such as silicone sprays, fluorocarbons (Teflon™), and wax products (Nikwax™). Fluorocarbon products are now being phased-out since they represent quite a toxic threat to the environment.
   The shell also has a secondary role to play – it offers us a shield from wind.

   For winter cycling you will dress using these 3 layers every time that you go out riding, regardless of the temperature. In some rare situations (zero percent chance of precipitation) you can substitute the hard shell for soft shell. **Soft shells** are woven in such a way that the fabric mechanically blocks wind (up to about 35 kph). The

fabric is treated with a durable water repellent (DWR) product, but they are in no way waterproof. Soft shells breath much better than even the state-of-the-art hard shells and are popular with high output activities like Ice Climbing, Nordic Skiing and Running.

You will use fewer/thinner mid-layers on warm days and more/thicker mid-layers on cold days. Conditions can change very quickly over the course of a ride and should your bike breakdown or you become injured you must be prepared to weather all conditions. **This is for your safety, as well as your ride group members safety. A rider that slips into hypothermia/frostbite because they're not properly prepared endangers all the group members.**

Riding with a daypack allows you to stow layers that you don't need. Although you shouldn't use down as a mid-layer, it's a good idea to have a down sweater in your pack for when you are stopped (flats, mechanical breakdowns, or injury). Once you are ready to ride again stow the down sweater back in your pack. Down sweaters (Patagonia™ was the originator of these and now almost all outfitters offer these) compress, often into one of their pockets, and are very compact. Fibrefill sweaters are less expensive, but don't compress as compact as the down versions.

Your daypack should also be stocked with an external source of heat for your extremities (feet and hands). These single-use packs use an exothermic chemical reaction to create heat. These packs can make the difference between losing fingers and toes to frostbite and returning home with a good story of survival.

Conclusion

So, what is the take-away from this then? The goal of using layering is to keep you comfortable in all conditions. How do you know that you're dressed warm enough for the ride? My rule of thumb is when I am at the trailhead, and I am feeling slightly chilled, I know that I am close to the ideal number of layers. I may still need to make some adjustments once I am riding but that is the price of comfort. A particularly hard ride with a lot of climbing and little wind will be very different than from cross-country riding with a strong wind.

Please see the articles in this series concerning Clothing for Legs and Torso, Dressing the Extremities and Products for Head Hands and Feet.