

Coming Out of Your Shell



Here in Australia, the layering message has finally made it to everyone, but it's still coming across a bit mixed and to be honest, that's ok because layering choice is flexible.

What is still causing some of the mixed messaging is the terms used by outdoors people, brands and manufacturers when applied to the various layers. Editor Charles has thrown us a couple of questions about one particular layer and that is the Outer Layer.

Define to me the Outer Layer.

What! Are you trying to start a fight? ok, I'll bite on this question. The outer layer is the outer layer of your layered clothing system, whatever that garment may be. Now some will be saying to themselves, "Oh, that's a hard-shell garment." and others will be saying it's a hard-face soft-shell, some think it's any form of shell jacket and so the argument will go. But layering is flexible and you layer to suit the expected conditions. If you need that outer layer to be waterproof, it's going to be a waterproof garment. If you need it to be wind proof, it can be only windproof but not waterproof, or it could be both. A lot of people talk about the outer layer being a shell garment as that is the one garment you don't normally put under others but the reality is that your outer layer is the one that suits your need at that time and the choice is entirely up to you.

What makes up the Outer Layer?

In the traditional logic of layering, people have always chosen the outer layer as being a Hard-Shell garment. The logic here is that this is a protective garment to guard against wind and rain so it's usually a light nylon garment with either a breathable membrane or a polyurethane coating. Now, there is a range of soft fabrics, such as fleeces that have a Hard-Face finish to the outer face. This is either a very tight weave of the fabric or a chemical treatment such as Durable Water Repellent or a fibre impregnation of some sort. Most often it's both but they never quite give you the same protection as a proper hard outer shell.

Does the Outer Layer Impact the Effectiveness of Layering?

Very much so. If we go with the usual outer layer of a water/wind-proof nylon garment, putting on this layer can affect the performance of all the other layers that you might have on, even if that is just a t-shirt. Being a government entity, defence did a study on the effects of all its clothing and equipment layers on the core temperatures of users. The surprise is that under all the gear and clothing layers, core temperatures had only moderate rises, well within tolerances, that allowed users to keep working for several hours before heat-stress becomes a problem.

When a hard-shell layer was added, its effect was to "seal" the user in causing core temperatures to rise much faster. The research found that users were now fatiguing faster and reaching dangerous core temps in as little as forty minutes under the same conditions. The impact of that hard shell layer is now quite significant and it would be wise to consider removing a mid-layer before putting on a hard-shell outer layer to negate the temperature raising effect, unless that's what you're after. Now, the hard-face fabrics we spoke about don't have as strong an effect on core temperatures as they are not as effective in stopping wind and rain as the hard-shells and you would need a couple more layers of them for the same effect. This kind of points to the hard-shell outer being pretty efficient for its size and packing volume.



What About the Quality of the Garment?

One thing all readers know is that better quality gives better and longer lasting performance and for the real adventurers this is critical. A simple shell garment with a polyurethane coating will do the job and assist the layers to work better under harsh conditions. But a waterproof polyurethane coating does not breath and all the moisture your body generates will travel to the outer layer only to condense and be absorbed and held in mid-layers. When you stop generating heat, that moisture is going to sap the heat from you and if it's below freezing, it can be the end of you.

Charles's Antarctic adventure is a case of this and he would have been very careful to balance his body temp to reduce the amount of moisture he puts out as sweat. To transport that moisture away from our body our lower layers must be wicking and the outer layer vapour permeable. That means a membrane fabric or a fabric with some sort of effective treatment. In this category, you will find the best science has to offer in membranes and some fabrics that have been described as nothing more than chemically treated show curtain.

So How am I Going to Choose?

Since the patent expiry on the original vapour permeable membrane technology, a heap of brands and trade names have entered the market, including some alternate methods of achieving a waterproof but breathable barrier. One of the hardest market segments to navigate is the "Home" brands of garments you now find. Since retailers decided to become manufacturers as well, they have begun to offer their own brands alongside the well know manufacturer brands.

This works by going to a manufacturer (almost always in Asia) and choosing the design, features and performance of the garment they wish to sell, then branding and promoting it in their stores. This means that the membrane type fabric they choose will be an off-the-shelf offering from the factory, to suit the customer. Now you need to understand that that customer is the retail chain, not you. That garment has to contain features that make it saleable yet maintain the sort of profit margin that still gives the retailer 150% percent when they throw it on sale at half-price. Some brands have been "created" just for internet-only clearance sales sites! Knowing that the outer garment you are being offered is made to a marketing department price and plan, you would need to be cautious about the performance of what you're buying. Even the major brands we have trusted for years have different levels of product quality and performance, in order to compete with the house brands.

To be honest, when choosing your outer layer, you should start with how you want it to perform. For a casual walker, a light shell with a mediocre performance membrane will suffice but at the other end of the scale, a trail runner will need the most capable membrane they can get in order to pass the most moisture, with the lightest weight etc. Next will come Price. Good gear costs and there is no way around that. If you want major brand technology, made by people who are paid proper living wages and who work in first world conditions at factories that consider the environment, then you are going to have to pay a premium. Even making to those rules in Asia costs nearly the same as in Europe. You're last option is Features. All the things like pockets, cuffs, colours etc. come last because they are just useless if you paid a fortune for a garment doesn't perform as required. So, Outer Layers, not so cut and dry but they play an important role in the comfort of your outdoor activities. Choose well.