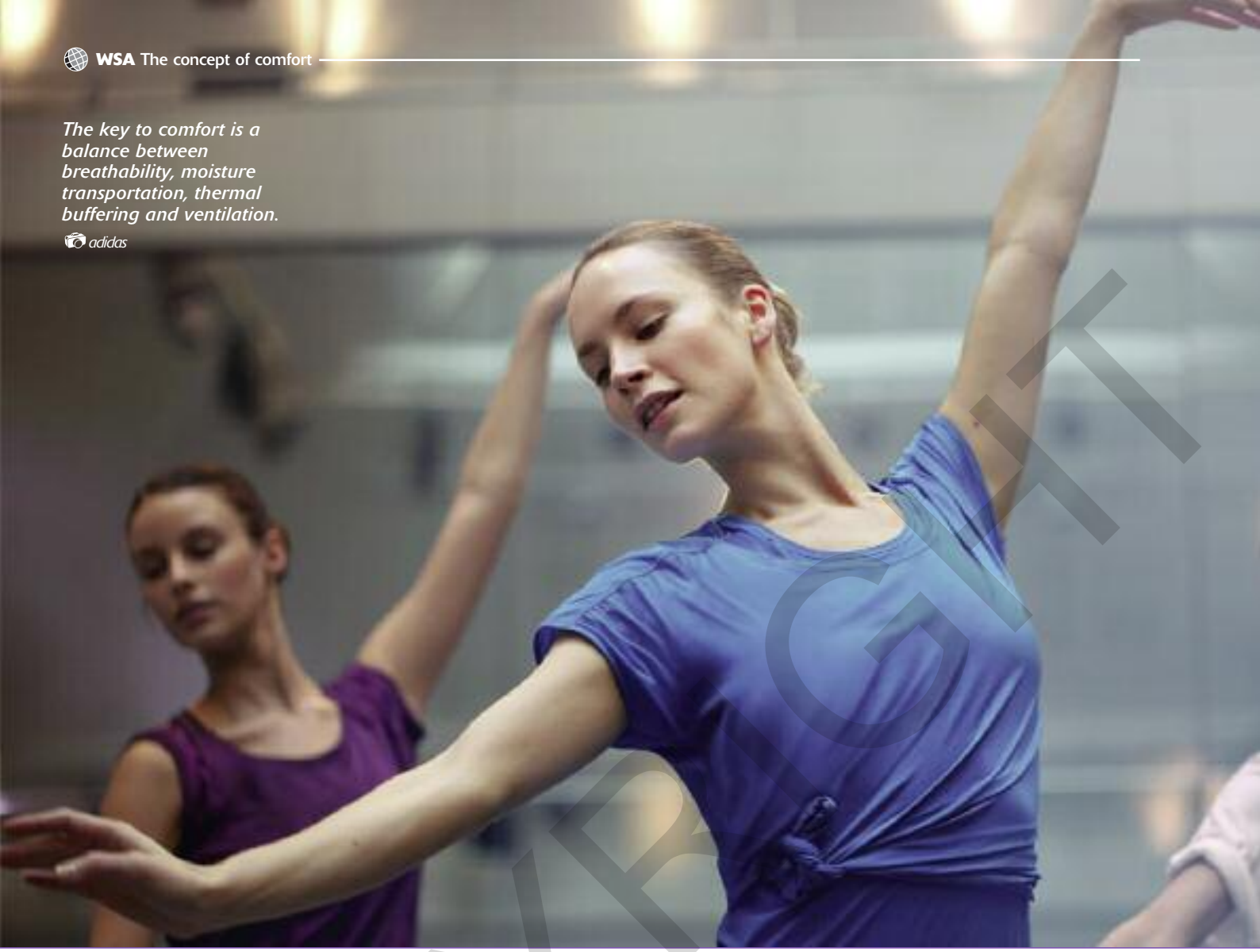


The key to comfort is a balance between breathability, moisture transportation, thermal buffering and ventilation.
adidas

Representatives of Patagonia and The Hohenstein Institute spoke on the subject of comfort during a seminar organised by Concept III at Outdoor Retailer Summer Market 2011.

The concept of comfort

Comfort is a big seller at the moment in sports and activewear, according to Dr Andreas Schmidt, director of function and care at German testing and research centre The Hohenstein Institute and an expert in "the physiology of clothing". Speaking on the subject at a recent seminar organised by specialist developer of textile solutions Concept III, Dr Schmidt said the main reason for comfort's current popularity is the growing realisation that it supports physical and mental fitness. A person who is uncomfortably hot and is sweating excessively will not feel at ease and will therefore perform at less than 100%. Comfort is, therefore, not a luxury but an essential element of what performance clothing has to offer, the Hohenstein director insisted.

He draws a distinction between thermo-physiological discomfort, which we experience if it's too hot or cold outside or if the heating or air conditioning is too intense inside, and sensorial discomfort provoked by a fabric that scratches the skin. In one series of tests his organisation has carried out, the difference between a highly breathable textile and a "non-functional" one was clear. At 28°C and 60% relative humidity, participants wearing the non-functional material had a heart-rate of 170 beats per minute after 37 minutes, considerably higher than those wearing the breathable material.

Sometimes sweat is "insensible" he says because it is vaporised inside the pores. If, in the right conditions, a person starts to move, to walk briskly for example, sweat will reach

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the end of the pores and appear on the surface of the skin. If the same person starts running, the correct textile will have sweat transportation, absorption and quick-drying capabilities. "This is about more than breathability," says Dr Schmidt. "We need moisture transportation, ventilation and thermal buffering and the key to comfort is to achieve a balance of all of these. So you have to ask yourself what you want to achieve with a garment, a textile, a yarn, construction, fit or the fibre you have chosen."

Objectively speaking

Questions over the best way to measure comfort objectively remain. Standard tests include applying water to a hot metal plate to simulate sweat, but does this really tell us much about what a particular textile will feel like on the skin. Andreas Schmidt feels this is a subject that has been less than thoroughly examined until now. Working with an industry partner, he explains, The Hohenstein Institute has developed a new test to explore it in greater detail. He doesn't name the customer organisation but says it was a company with a competitor that was making loud claims in the marketplace regarding the comparative breathability of their products.

He explains: "So our partner made three new types of yarn and asked us to help establish which of the three would beat the competitor's product. We developed what we call the Wet Skin Index, which we feel is important because you have to know how you'll feel if you start sweating. It's a question of measuring how many contact points there are between the textile and the skin. We combined this with wearer trials, with a subject working on a treadmill while wearing garments containing the three different yarns. We correlated all the results and came up with an answer."

Label talk

It's a development that has led The Hohenstein Institute to introduce a new label to show the levels of wellness and comfort a consumer can expect from a garment. Schneider Sportswear, a family-run firm based in Albstadt, south-western German, became the first apparel company in the world to earn the right to put the new Wellness label on its clothes towards the end of 2010.

In all, five different measurements are taken in order to quantify objectively how a textile product feels to people when it is in direct contact with their skin. A surface finish index states whether the product scratches the skin or feels soft. There is also a sticking index to show how much a textile product sticks to damp skin and consequently feels uncomfortable. A wetting index provides information about how quickly moisture is absorbed by the textile product when you sweat and so is carried away from the skin. The number of contact points between the textile and the skin is used to measure how quickly the textile starts to feel clammy and damp. Finally, a stiffness measurement is important to for establishing how well the textile product fits your body and can be an indication of how comfortable the garment seems to the wearer.



Patagonia says its customers have come to expect comfort from its clothing products.

Patagonia

Push the boundaries

Dr Schmidt's ideas resonated with the views expressed by another speaker at the Concept III seminar, the director of material development at outdoor brand Patagonia, Steve Richardson. Patagonia knows its customers expect comfort from its products, he says. More than that, they are often people who will "push the boundaries of what is comfortable, durable, functional or sustainable".

Patagonia has a diverse team of sponsored athletes and outdoors people who field test products in all possible conditions. "This is a great way to see how products perform," he explains. "That means testing barrier technology for protection from cold, wind and wetness and yarn technology for sun protection. Surfers, for example, want sun protection and comfort, but in their case you have issues with salt, which is very tricky. Our testers are very experienced and this approach is absolutely objective." He says Patagonia takes what it learns from the field tests its product ambassadors carry out and conducts "a significant amount" of lab testing to validate what users have seen in the field.

Durability is another important quality for his company and always has been. Founder Yvon Chouinard was in the habit of going to thrift stores in the 1960s to find gear to wear himself on his treks in the mountains and if he found something he liked, he would wear it until it was unwearable. He made this approach part of the Patagonia philosophy, attempting to design durability into the brand's products. "Durable clothing means people will carry less, and travelling light is also a way of achieving more comfort," Mr Richardson says.

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