

More demand for less

Maier Sports

Ever since sportsmen and women began challenging one another for world records, weight has been an important issue. Less weight means less of a burden, more flexibility and quicker reactions. It also means less pressure on joints, ligaments and muscles and a decreased risk of injury. This is not only true for elite athletes competing for records, but equally for outdoor activities and lightweight is becoming increasingly important in the outdoor business.

Outdoor companies and their marketing departments constantly try to outdo each other with new records regarding the low weight of their products. In general, small compressible packaging is a close companion of the lightweight approach to function, which makes it more than obvious why it is a permanent feature for outdoor products.

Lightweight is important for both safety reasons and for increased comfort and in the outdoor sector it is one of many ways to meet the needs of today's outdoor enthusiasts. Furthermore, lightweight is now retailers' favourite selling point as it is easy to handle, is self-explanatory in terms of its advantages, and therefore requires no 'hard sell' as consumers can clearly see the benefits.

At first glance, lightweight may not seem an absolute essential in cold conditions at the top of a mountain. The region above 8,000 metres is commonly known as the 'death zone' in mountaineering. The thin air, lack of oxygen and the creeping cold in these harsh conditions are extremely hazardous and a bivouac at such heights would offer little or no protection. Speed is therefore considered the primary necessity for the successful ascent and descent of a '8,000er' and lightweight apparel and equipment is essential.

For mountaineering companies, lightweight equates to speed and safety. But, as the number of consumers who actually climb at altitudes anyway near 8,000 metres is insignificant, the speed with which equipment can be erected or installed is designed to meet the safety needs found at lower altitudes. However, although conditions at these lower heights are not as dangerous as those found above 8,000 metres, lightweight equipment allows mountaineers to react more quickly to any changes in the

weather, allowing them to turn back or descend if conditions deteriorate or if other problems arise.

Most mountaineering companies' ranges now include lightweight lines or offer products that try to be as light as possible such as Salewa's Alpine Extreme Speed line, Haglöf's 'Less is More' (LIM) series, Berghaus' Extreme Light collection or The North Face's 'Flight Series'.

For spring/summer 2007, The North Face has divided its Flight Series into two categories that can be used individually or together. One is its Flight Series Ascent for alpine mountaineering, the other is the Flight Series Endurance for all activities based around athletic performance. Maximilian Hofbauer, general manager, The North Face Germany, Austria and Switzerland, regards Ascent as a concession to the German-speaking central European market. "This (subdivision) is a reaction to how we are positioned within different markets," he says. "In France, trail running is a big issue and The North Face is respected for athletic performance, whereas in Germany, even though there are some mountain races, everything goes back to the alpine environment."

As the Endurance series highlights, lightweight is not only a matter of mountaineering, but of speed in general. The names of lightweight products reflect this approach: Jack Wolfskin has Fast Forward, Helly Hansen has Velocity and Vaude has Fast and Active.

Changing challenges

In the last fifteen years, participating in outdoor pursuits has changed tremendously. In the past, walking trips usually lasted two weeks or more and people had to carry a large amount of equipment, even across relatively easy terrain. Therefore packs had to be large and carrying systems had to be able to cope with heavy loads. Today, the majority of outdoor activities last less than a week and, as a consequence, people carry less equipment, have less weight on their backs and packs only have to be able to cope with 12kgs rather than the 26kgs as they did in the past. This dispenses with the need for a harness system that limits breathability and provides freedom of movement rather than being bulky and heavy.

Trail running, ultra-trail marathons, mountain bike challenges, and cross alpine tours are among the new outdoor sports that call out for lightweight products for the sake of speed. And they really are 'done-in-a day' or, at most, in a long weekend.

Among lightweight apparel, very light waterproof and windproof jackets are becoming increasingly more successful at retail. The reason is quite obvious… soft shells. Since the beginning of the 21st century, soft shells have established themselves as an important product category in the market and the reason for this is evident. Approximately 85% to 90% of the time the weather is fine to fair and no waterproof jacket is needed. The new soft shells with better breathability, more freedom of movement and a more durable outer fabric offer more functionality and are suitable for most activities most of the time. Nobody wants to carry a heavy waterproof jacket in their backpack on the off chance that it might rain and there is now no need to as modern waterproof jackets are small and light in weight. In this respect, soft shells really have changed the market.



The North Face's DIAD is designed for today's shorter outings into the outdoors.

North Face

Comfort for the masses

Most consumers don't want to beat records – they are recreational outdoor enthusiasts. It's not speed that they are after but fun and relaxation. Nevertheless, they too prefer lightweight products, because the heavier the burden the less fun and less relaxing the outing will be. Lightweight offers outdoor enthusiasts the opportunity to go further without being encumbered by heavy packs, allowing them to spend longer on a trail and cover more distance, without needing to spread it over several days or risking injury as lightweight prevents 'carrying' a backpack from turning into 'lugging' a backpack.

In general, these 'light walkers' are not the target group of the various lightweight series on market, but they do represent a large consumer group and the business they generate is welcomed.

In Europe, lightweight apparel and equipment is increasingly becoming a product for the wider masses. It is also a big issue for women. In contrast to men, who can be heard to boast about the heavy weights they have carried, women try to carry a little as possible. Lightweight gives them the opportunity to have more independence as they don't need a partner to carry their tent or stove. In terms of apparel, designers have always focused on using lighter fabrics that feel good next to the skin for women, while men don't seem to mind more technical and tough fabrics.

Consumer friendly

Not only have outdoor activities changed over the last few years, consumer demand and retailers' perception have also undergone significant changes. "Some years ago outdoor retailers argued, a lightweight jacket was not a proper jacket," says Hofbauer. They preferred to (and could) sell durable three-layer jackets twelve months a year. This is definitely no longer the case. Today the market distinguishes between

the summer and winter seasons, not only in respect to warmth but equally in respect to weight. "The Flight-Series is our summer issue," remarks Hofbauer, adding, "And it sells very well and has helped us a lot."

The good thing about lightweight is that it is a function that is obvious to the consumer. In contrast to other functions such as waterproofness, UV protection or anti-bacterial, the weight of a product is evident as soon as a customer takes hold of it. Yes, lightweight is easy to sell and consumers want it, but this risks causing another problem, in that other functions and features might not be considered if the focus is on a garment's lightweight properties.

Bernd Kullmann, general manager of the German rucksack specialist Deuter issues a warning about adopting lightweight products as a general solution for all outdoor endeavours. "If you buy lightweight, then you get lightweight," is Kullmann's standard phrase. This is not because he doesn't like lightweight—he does. Nor is it due to the assumption Deuter doesn't produce lightweight packs—it does. Kullmann merely wants to see more honesty when advising consumers at a retail level and wants the consumers themselves to seriously consider what is really needed, as lightweight products cannot offer the same level of durability that heavier products do. So to prevent lightweight products losing image, he advises people to only pick lightweight apparel and equipment where it is appropriate and to use heavier products in situations that demand it. Lightweight used in the wrong situations can quickly transform a good product into an expensive, high-quality disaster.

Whilst the benefits of lightweight products are not in question, they are fashionable at present and this has led to some discrepancy in the quality of the products available, as not all lightweights really are light or perform better than their heavier counterparts. You really have to be a pro to know whether the performance really does match and, unfortunately, more often than not, it does not. Lightweight products are very seldom as abrasion resistant, as punch proof or as otherwise durable as heavier products—on condition that a similar high quality fabric and a similar standard of production is compared. So the weight question boils down to a question of priority: lighter or more enduring?

Light in weight, light on performance?

Evaluating the lightest product isn't easy, because details and features change the weight of a jacket rapidly. Helly Hansen presented its Mars jacket as the world's lightest jacket at 57g (although the apparel summer 2007 catalogue features it as 69g). The jacket is produced from a very thin polyamide and has a full front zip and an adjustable draw-cord at the waist… but nothing else. So, in essence it is a plain wind-protective jacket and offers no other real performance functions. Even so, the weight was a surprise, even to Helly Hansen. Christian Wander, who is responsible for the brand's marketing in Germany, explains how the company was aiming for 75g, but when it was eventually finished, it weighed even less.

Montane has a similar jacket, Jetstream, made from Pertex Quantum—maybe the lightest down and windproof fabric. The approximate weight is 70g for an adult medium-sized jacket and it has a drop tail, articulated arms and a separate pocket. Nike ACG's Super Light Shell weighs in at 93g, but is the only one of these three mentioned that has a chest zip pocket, a two-way front zip, a roll away hood and armpit zips for ventilation. It may be 36g heavier than the Helly Hansen product, but has many more features. So which of these is really the lightest jacket with the highest functionality… not forgetting that anything under 100g is incredibly light?



Nike ACG's Superlight Shell.
Nike

The quest for the lightest product doesn't necessarily create the product with the best performance—and performance is the core idea behind functional outdoor apparel or equipment.

Lightweight product development expert Mike Parsons, who has over 40 years experience in the outdoor equipment trade, has now re-entered the lightweight market with a new project called the 'Original Mountain Marathon Company' (O.M.M.). Parsons wants to re-invent the meaning of lightweight, calling his product range 'leanweight'. "I changed the term to 'leanweight' because 'lightweight' has been worn out," he states. He criticises two developments within the lightweight category. "You can either find packs that weigh three pounds and are still called lightweight or they are light but are stripped of all performance." Parsons, who also teaches Innovation at Lancaster University Management School in the UK, borrowed the term lean from nutrition and lean manufacturing. His lean products can be used full weight or stripped to the minimum (no fat), but offer a high rate of stability and performance (good taste with nutrition) and thus differ from mainstream lightweight thinking.

Achieving featherweight function

Whilst product designers and product managers have to be careful not to overdo the lightweight spirit and get carried away with

wanting to develop a new 'worlds' lightest product at the cost of performance, developing good lightweight products has become much easier than it was some ten years ago. Waterproof and breathable membrane jackets have recently cracked the 200g weight barrier. Marmot's Essence jacket and The North Face's 'DIAD' (Done-In-A-Day) are both 198g. Haglöfs OZ pullover is only 175g. All feature functional, adjustable hoods and the DIAD even has armpit zips.

Even jackets that are suitable for carrying a heavy backpack or offer some kind of protection against abrasion have become remarkably lightweight. Three-layer jackets with reinforcements on the shoulders and elbows are now available in weights as low as 450g-550g such as Marmot's Skylight jacket at 483g, Arc'Teryx's Alpha SV at 512g and Patagonia's Stretch Elements jacket at 567g—all of which are lightweight jackets if you consider the performance they offer and compare them with the products available a decade ago.

Waterproof and breathable jackets have gradually decreased in weight making them an average 300-400g lighter than they were ten years ago. This is, of course, as a result of lighter membrane compounds such as W.L. Gore's PacLite and Gore-XCR. Both of these have been allowed significant weight reductions, as have others. Marmots' PreCip Plus is very light and as a result of the silk protein on the inside, which prevents the membrane from sticking to the skin, it has been able to dispense with a lining. The Event three-layer membrane is very light as it does not require a PU-coating as its competitors do. The Vaude Casalla II jacket with Event (235g) is probably the lightest three-ply-jacket on the market.

But it's not only the fabric that has an effect. Markus Weder from EMPA (Swiss Federal Laboratories for Materials Testing and Research) frequently reminds product managers that "a good fabric does not necessarily make a good jacket", arguing that too many seams will reduce the breathability of any fabric because sealed seams cannot breathe, and a good cut that won't allow too much air between fabric and the body is equally necessary. So, lightweight is not only achieved through lighter fabrics. With regards to a comparison of older technology and today's jackets, the new products have not lost performance, but have more frequently gained it. Processing technologies have become more sophisticated (e.g. bonding and welding) and have contributed to lighter products. Innovative ideas (waterproof zips or pocket ventilation systems) have also opened up new possibilities without increasing weight and changes in the polymer structure of the fibre (nanotechnology, encapsulation or additional particles or ions) have increased functionality beyond imagination. Better stain- and water resistance, active wicking capabilities, antimicrobial and anti-odour properties, and UV-protection have also added extra functionality without increasing the weight of the garment.

The same applies to the second layer. The products have become lighter because of better fabrics. Berghaus' Infinity Light' sweater with Primaloft and Pertex Quantum weighs in at only 275g and Patagonia's R.5 top made from Polartec Powerdry is only 227g. The classic Thermal Pro 200 Fleece, which is probably still the most frequently sold fleece, weighs twice that at least. There is more good news regarding these new second layer products in that they have similar insulation properties and possess further advantages such as less pilling and improved freedom of movement.

The lightweight issue has many facets. It's not purely a matter kilogrammes and grammes, but reflects the development of the outdoor market. That is probably why lightweight is an area that doesn't seem to be going out of fashion, but may be pushing its limits.

Light shines bright at Outdoor

Lightweight products dominated the first-ever 'OutDoor Industry Award' competition at the 2006 OutDoor trade show in Friedrichshafen, Germany, winning the gold award and bringing home four more silver awards out of a total of seven prizes.

The gold award was won by Haglöfs' Oz Pullover using Gore-Tex PacLite (the lightest Gore-Tex membrane on market) with an innovative cut that reduces the body pattern of the pullover to just two pieces. The jury argued that it offered, "The ultimate lightweight rain protection—of truly minimal weight. No other waterproof, breathable jacket is lighter or easier to pack." The jacket is only 175g in a 'large' size and has a long front zipper, an easy to regulate hood, thumb loops at the cuffs and a zippered Napoleon-pocket.



Haglöf's Gold award-winning OZ Pullover.

Haglöf

The second apparel prize, the silver award, was given to a lightweight insulation garment, the LIV downsweater from Klättermusen. The jury saw the 290g sweater as a warmer and lighter replacement for bulky fleeces that will take up less space in a pack.

Lightweight was equally important in terms of equipment and other Silver Award winners included "the first tent that weighs less than a kilogramme" (Terra Nova Laser Competition tent), the SynMat 7 sleeping pad from Swiss Exped that offers an excellent ratio of thermal performance to (low) weight and the Corsa Nanotech ice pick from C.A.M.P., Italy, that was, according to the jury, "reduced to an absolute minimum" with nothing more that could have been left out—which in their view was "a major advantage".