

There has been a lot of talk about the barefoot revolution, in both trade and consumer press over the past couple of years. With the launch of the BIOM collection in 2009, Ecco had already integrated the trend into its sports footwear, but it has added to this for summer 2013 with a unique product: running shoes made from unlined yak leather.

Barefoot shoes, Danish style

by Penny Leese

It is typical of Ecco's way of doing things that it has used unlined yak leather in a super lightweight running shoe in its summer 2013 collection.

Ecco has, with its BIOM collections, finally broken into the sports category. The company has been known for its high quality and comfortable shoes worldwide, since it was founded in 1963, but struggled to shake off its anti-fashion, comfort image, especially in its home market in Scandinavia.

With its move into retail in the Far East, Ecco had a fresh slate and became a high quality aspirational label there. It has gradually moved into sports, using its wide technical resources and knowhow – moving into various categories only when ready.

A start in sports

The first Ecco sports line was golf shoes, launched in 1996, and the company soon became a sponsor of high-profile Danish golfer Thomas Bjørn. In 2000 the company started working with the Panum Institute, part of the University of Copenhagen, with one of the specialists there, Finn Bojsen-Møller, on biomechanics (from which BIOM gets its name), and developed technical walking shoes, a natural extension for the brand. Then came a training shoe, with the addition of running and outdoor in 2009. In 2009 the first BIOM running shoe was launched. It already had a very distinctive Ecco look with its wrap around external PU outsole and slightly asymmetric toe shape.

European lasts

Although aimed at sports, the Ecco BIOM collection has always had the company's DNA. For example, the BIOM shoes are made using the same European sizes and fittings as the brand's casual shoes, so customers can easily try



them on for fit. This is totally different from most running and sports shoes, normally made using US lasts, which can cause problems due to US-European conversions. This sees consumers often having to buy one or two sizes larger, and to try several pairs on to get the right size.

Alex Nicolai comes from a background of elite sports, having completed 12 Ironman long distance triathlons and run several marathons; he is now a marathon coach. He has a diploma in sports medicine from the University of Mainz in Germany and a Master in sports economics from the University of Munich. He joined Ecco five years ago as product manager, but has been head of its sports business unit since October 2011. He explains the story and research behind BIOM and the new developments.

The collection is based on research from the German Sports University of Cologne, one of the leading centres of research for biomechanics in running.

According to Alex Nicolai, the university's Professor Gert-Peter Brüggemann is a leading expert in the field of the biomechanics of running and has published over 150 scientific papers in German, English, Japanese and Chinese. He has worked for a long while on the topic of natural running and the influence of shoes on human movement. According to his findings the concept of natural motion should function as a role model for future shoe constructions.

BIOM principles

Generally, running shoes provide cushioning and motion control to support feet from falling inwards (pronation) or outwards (supination). Ecco's work on biomechanics with the university team in Cologne began in 2006.

Using 3D motion analysis the scientists observed runners three ways: barefoot, in their own used running shoes and in the BIOM shoes after wearing them for five or six weeks. Running in bare feet means that there is no heel strike. The feet tend to hit the ground first at the toe area, and the strides are shorter, with more flex on the knees. Since the knees flex more, the shock is better cushioned than on a long stride with a straight leg where the shock can go straight up the leg to the hip or the spine for example. But running with no shoes can be dangerous because of broken glass and uneven

Ecco Trail shoes with Gore-Tex.



terrain with sharp rocks and stones that can cut feet. It is not very comfortable running barefoot in the middle of winter either.

Running in the BIOM shoes changes the running style back to a more natural rhythm. Since there is more muscle control of the foot joints the feet get stronger and gradually more stable, reducing risk of pronation or movement at speed. The BIOM also stretches the Achilles tendon more, as they tend to have less heel pitch than normal running shoes. The scientists reckon that this increased tension will lead to better push-off.

The idea is that it should also lead to reduced load on the joints as steps are shorter. Normal jogging shoes have a wide heel to hit the ground to cushion the foot. But that makes the foot lazy. When the heel part that hits the ground is narrower, the runner is forced to hit the ground with the centre of the heel so the foot is actually more stable and there is less chance of twisted ankles or Achilles injuries. The running style is straighter, the feet are more in line with each other and don't roll so much.

There are two main principles in the BIOM shoes. The foot is lower to the ground, and the shoes are more flexible. When feet are closer to the ground, they are better able to adapt, says Mr Nicolai. The degree of flexibility varies according to the type of footwear. As he explains, the toes are the most flexible part of the foot, as the bones are smaller. As the foot nears the ankle the bones are longer and less flexible.

Running shoes

The forefoot of the new BIOM super lightweight running shoe in yak leather is extremely flexible, while the heel and shank area have more support than most minimalistic running shoes. There is a shank built into the shoes but you cannot see it, as it is encapsulated into the PU. It is exactly four millimetres under the foot, so that the foot still gets cushioning above the shank. It is interesting too that the PU sole and the insole support are moulded in one piece: the sole and footbed are a single mould.

The entire outsole on the summer products is single density PU which has the lugs on the bottom, and an arch support and foot cradle on the inside, which acts like an orthotic. There is no insole board and the shoes appear to be Strobel-made but are actually traditionally string lasted like many of the other Ecco shoes.

When you look inside, you can see the flat, smooth join between upper and sole cover, a wicking textile liner to provide comfort and help reduce slip, so that the foot is not in direct contact with the PU. As the shoe is unlined the external support offered by the outsole at the heel and arch area mean no rubbing or abrasion inside the shoes. The only lining is a light padded collar lining which is also in yak leather.

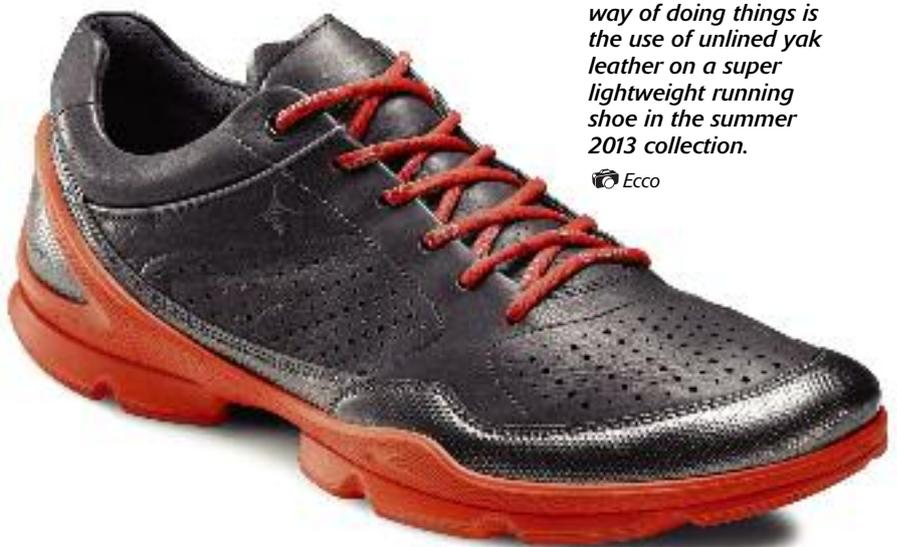
The collection

Ecco has segmented the collection covering all groups from top athlete to casual wear. Constructions are segmented from less to more support and high to less flexibility, with the most flexible shoes naturally having the least support. The running collection is what can be called the "flagship collection".

For summer 2013, the Evo racer made from yak leather is top of the running shoe line. Yak leather was first introduced in 2006 in the Ecco hiking line. It has a tighter structure than cow leather and is very abrasion-resistant. The advantage of yak leather is that it can be used thinner as it is so strong, and thinner leather leads to lighter weight shoes. Ecco's yak leather is from sustainably farmed yaks, but they are still "free range" so can suffer from small marks and damage from bites, cuts and scratches. Unlike other companies that use yak leather from Tibet, Ecco has a regular source with no production bottlenecks. The leather on the new BIOM running shoes is skived down to between 0.9 and 1 millimetre in thickness (which is very thin) and are made unlined so they are super-light and breathable. The yak leather was been developed in the Ecco leather research and development centre in Dongen in the Netherlands.

There is also a version of the Evo racer in textile material, weighing only 210 grammes; the weight has been reduced significantly. It has technical running shoe features such as the asymmetric tongue, which is fixed on the inside so it won't fall down. It has a microfibre "cage" in the midfoot and this means that there is some reinforcement textile to stop the shoe giving or stretching too much in the arch and midfoot area so that the foot remains in place inside the shoes and doesn't slide forwards in wear. This also keeps the toes from hitting the toe box.

The lacing system is much longer than a normal casual shoe, which gives more stability inside the shoe. These BIOM lite shoes are



Typical of Ecco's own way of doing things is the use of unlined yak leather on a super lightweight running shoe in the summer 2013 collection.

 Ecco

designed especially for midfoot and forefoot strikers. Asked about adapting to a new type of footwear, Alex Nicolai explains that runners change their style to fit the shoes. In around six weeks runners are already running better and have fewer injuries; but they do need time to train up the muscles of the foot better, since they are now working harder, he says. An average runner, or one who runs less regularly, will have to adjust more slowly if they are not in top physical condition.

The new BIOM running shoes have been upgraded and developed from the first generation. They have been fit adjusted for additional comfort as they are now closer fitting in the heel cup and the midfoot area. As Mr Nicolai explains, the most important area for fit of a running shoe is actually across the instep. This is also why the new BIOM shoes have a longer lace opening, so that there is more control over the fitting to the individual. For summer 2013 the Ecco design team has also been building on the success of the BIOM collection and made it wider.

Sandals too

The Terrain sandal takes the BIOM principles into this type of footwear too. Ecco's sandals have been the bestselling part of the collection worldwide since the Off Road sandal was launched in 2006. In the US, Ecco is the second biggest selling sandal in the market, says Mr Nicolai. The BIOM Terrain sandal has a direct injected PU midsole that rides up the upper. In this respect it is like the shoes but unlike the running shoe, it has a rubber outer sole for harder wear. It also features the more anatomical last and footbed from the non-running shoe part of the BIOM collection. It has a microfibre sock liner, lighter than leather. The upper is in PU-coated synthetic so that it stands up to salt water.

The BIOM lite casual wear shoes are less protective, very comfortable and extremely flexible as they have no shank at all. Styles are updates on classic constructions, the Velcro ballerina and the lace-up. More trendy are the new ballerinas with no strap, looking more sophisticated than before, and more city-like. Sports inspired, and super light is the new aquasock inspired slip-on made in stretchy spandex-like material.

Training and walking shoes

There are additional colours and styles in each category of the collection: the bright neon colours that were a hallmark of the top of the line collection in summer 2012 have been added to the rest of the mainstream collection, right in line with sports and shoe trends. There are new uppers on the walking shoe and on the cross training shoe.



Infant shoes

What about the future of the BIOM range in the Ecco stable? Mr Nicolai points out that the concept will be constantly improved and also expanded on. They are introducing an infant's version. This isn't just a scaled-down version of the adult's shoes but designed around infant's feet, a subject close to Mr Nicolai's heart as he has an infant son. "Children's feet are more flexible than adults," he says. "They get more input from the ground. Children in the developing world actually have stronger foot muscles as they exercise their feet every day when they run around with no shoes. The BIOM for infants allows the feet to get more input from the ground than regular infants' shoes. Here Ecco goes against traditional opinions and marketing by established German and Austrian brands that claim that baby feet must have support at the ankles and also often in the arch area, too, to help feet grow healthy and correctly.

The Ecco BIOM collection running shoes have been based on measurements taken from 2,500 German athletes by the University of Cologne. These were all scanned in digitally. They created a database and evaluated the average measurement for width of heel and forefoot. One interesting result is that they have readjusted the new collection for better fit, and there was a need for a tighter heel counter. Even if the forefoot is spread, the heel is still slim in a normal athlete. So the new BIOM shoes are slimmer in the midfoot and the heel cup than in the first generation of the shoes.

The Ecco sports shoes are based on mid-European footwear sizing, using Scandinavian and German measurements (which are roomier in the fit than, say, French measurements). Despite this, they have sold very well in Asia, too, with no adjustment to the fit, except that there are more styles available in smaller sizes such as women's size 35. 

Ecco Hike, an all year round lightweight hiker with Gore-Tex.

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