

Army enters long-distance trainer wars

“Left, right, left right – pick up them boots.” Now the armies of the world are flexing their muscles by wearing not only combat boots but fitness training shoes. Are these trainers Nike? Adidas? No, they are a new label - UK Gear, designed and developed especially with the help of the British Army. Not only has the new XC-09 model passed the German military standards with flying colours, but it has also been given NATO approval.

UK Gear, a British sportswear company, in association with the British Army Physical Training Corps, have developed and tested a new high-performance running shoe range with the emphasis on durability. Designed to go the distance, this new range of training shoes needs to be tough enough to withstand the rigours of military off- and on-road fitness training. It has stability and durability features such as S+S strengthening and stabilising polyurethane medial support plates to prevent overpronation, additional torsional support for motion-stabilisation and a high-abrasion resistant deep lug carbon rubber outsole. Even the upper features of the popular nylon mesh running shoe have been improved with the addition of a supportive rand, extra overlays and high-frequency welded supports in the rearfoot. Some of the durability features included in the UK Gear training shoe range are:

NRG Impact / Reactor Pads:

In the heel area a super-absorption blown compound with a unique molecular structure gives sustained inlaid cushioning to minimise impact throughout the body. Highly-responsive NRG Reactor pads made from the same compound is inlaid in the forefoot to complement the foot's natural energy return during the toe-off phase of gait.

SOLite EVA Sockliner / Midsole Compound:

The improved removable moulded EVA material is reinforced for additional comfort and support. In the midsole this unique EVA compound reduces the weight of the midsole by 15% whilst maintaining outstanding durability and cushioning.

duoMASS Midsole Compound:

A harder density EVA compound for added medial motion control is incorporated into the midsole to help control overpronation.



UK Gear's PT-03 shoe is designed for runners looking for a blend of durability, cushioning and support.

 UK Gear

S+S Sub Plates / Bridges:

Strengthening and stabilising polyurethane medial support plates, with reflectivity for road safety, add support in the forefoot for torsional support and durability. This feature offers additional protection from bruising in the forefoot. In the midfoot the PU bridge structure strengthens and stabilises both the mid and forefoot during the gait cycle.

Skeletal Support Struts:

This is an upper material support feature offering reflective exo-skeletal construction overlays and high-frequency supports in both the heel and forefoot areas to enhance upper stability and fit.

SEALTEC:

Is a light yet durable membrane that gives an impenetrable barrier to water along with a hydrophilic structure allowing for optimum breathability.

BIO+flex Technology:

BIO+flex is the name given to the anatomically aligned flex grooves that mimic the natural movements of the flex-path of the forefoot.

3M -360 Reflectivity:

Using 3M reflective material for on-road running safety, the 360 design enhances visibility in low light to reflect glare from all angles.

Anti-microbial

Designed to inhibit the growth of bacteria, fungus and other odour-causing microbes, the anti-microbial treatment gives long-lasting hygienic freshness to the shoe.

Going the distance

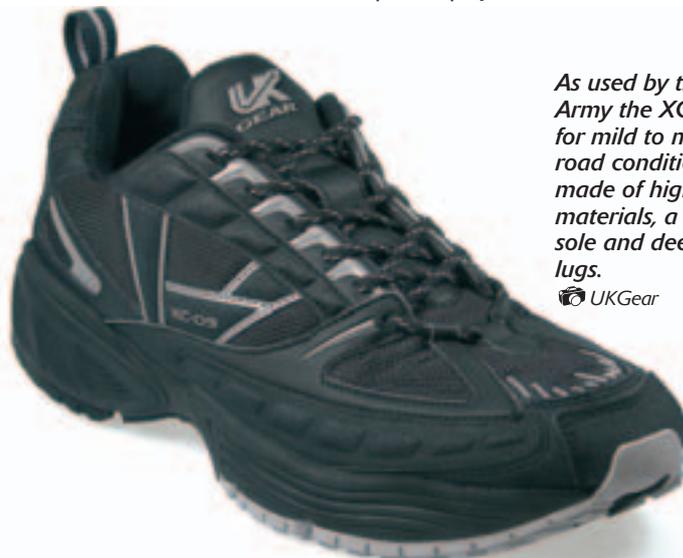
The toughness and durability of traditional army boots has long been established. And there are other categories that could claim the bragging rights for most durable "long distance footwear". Amongst these could be the work boots produced by such dedicated companies as Wesco in Scappoose, Oregon. Specialised boots such as those used in the timber industry are engineered for serious long-lasting performance with features such as a spring inside heel breastplate and toe plates, medial and lateral riveted steel sole and heel welt-serrated grippers and block-stacked heel with riveted calks. Wesco uses a stitchdown construction to help seal its boots and give them maximum flexibility for better wear. Steel plates can be built into the sole to help protect the feet against penetration by nails and other sharp objects.

One would have to include hiking as a category into the mix of most durable "long distance" performance shoes, especially the more rugged trekking, backpacking and mountaineering varieties of outdoor footwear. Hiking was traditionally founded in the mountainous regions of Europe, such as the Alps, where farmers

required a sturdy shoe when tending their cattle and sheep in the high pastures, or when a trip to the next village meant at least a three to four hour hike. In those days the average hiking boot weighed approximately three pounds (1.361kg). It was made with 2-3 millimetre thick leather, plus possibly a softer leather lining, made either by Norwegian welt or Goodyear welted construction. The sole would have consisted of a wooden midsole with a thick rubber lugged outsole, as originally designed in 1935 by Vitale Bramani (the founder of Vibram soles) in Italy.

When one considers long distance, durable footwear, the obvious emphasis is on the outsole and there is still none better than Vibram. Produced now in several countries, Vibram outsoles have not changed radically over the years. Carbon SBR rubber is still regarded as the most durable outsole material to go the distance and offer the best traction for the serious runner or hiker. Hiking outsoles have become much more contoured in recent years with the wrap-up toe and heel bumper almost essential features, as well as contoured inside heels and radialed lateral and medial support cupping on the outsole walls. As rubber compounds have improved it has become popular to reduce the base thickness of the outsole to reduce the weight. The traditional lugged outsole, as popularised by Vibram, has become almost generic in the design of hiking boots with lug thickness of approximately five millimetres in depth. One new material that has been introduced recently as an outsole component is Kevlar, as protection against the penetration of sharp rocks. Kevlar also adds stability to the outsole compound.

Another category that could qualify as a shoe that must go the distance in both traction and durability may be more of a surprise. Tennis shoes, considering their relative light weight and cement or direct injected construction, take some of the most punishing hours of hard wear on cement or asphalt courts. A competitive tennis player practises many hours per week subjecting the mostly rubber outsoles to extensive toe dragging and excessive stops and starts on hard court surfaces. It is not unusual for a competent player



As used by the German Army the XC-09 is ideal for mild to moderate off road conditions. It is made of high-abrasion materials, a tough mid-sole and deep traction lugs.

 UKGear

to go through six or more pairs of tennis shoes per year. How about the pros? Well most of them get their shoes provided by the athletic shoe companies free anyway, but a new pair every two weeks would have to qualify as "hard wearing" don't you think?

Standards

Military boots have long been considered a vital piece of durable equipment for fighting personnel. Through years of field testing with thousands of military men and women at its specialised development and testing centre in Natick, Massachusetts, the US army has participated in developing a strict Index of Specifications and Standards (DoDISS) for combat boots in conjunction with the US Department of Defence. Through its licensed manufacturing partner Quabaug Rubber Company in the US, Vibram holds many compound and design patents and is specified on more MilSpec (Military Specification) contracts than any other outsole producer. These include the #1275 Olimpia, a composition blocker outsole with ergonomic flex grooves, multi-directional lugs and ladder grip lugs to provide maximum traction on various terrains. This sole has been designed to be offered to manufacturers in single or dual hardness: The #1276 Sierra for hot wet and desert conditions as well as on a variety of terrains including wet and cold surfaces; the #1307 Offset Chevron with traditional Chevron design in both heel and forepart to provide maximum slip resistance and the TL version with self cleaning lugs, large heel and toe pad for stability; the #134 Tech Lug Sole with TL version to incorporate EVA for shock absorption and the #148 Kletterlift with centre medallion of traditional carrarmato lugs to maximise traction and promote gripping and braking.

Knowledge transfer

One of the advantages of being part of a large conglomerate corporation is the potential manufacturing know-how and transfer of technology from one division to another. A company, such as Wolverine World Wide (WWW), has the advantage of studying vastly different categories of footwear from a durability perspective. In the past two decades the athletic shoe segment has greatly influenced other categories of footwear, not only in the casual and dress segments of the industry. Hiking and military boots have adopted lighter weight, more comfortable athletic shoe features, such as polyurethane midsoles and mesh nylon upper panels. This transference of technology and materials is more readily available to companies such as WWW that, either in the past or currently, own multiple brands in different categories such as Brooks in athletic, Merrell in hiking, Hush Puppies in casual and Bates in the military segment. One such example would be the "Intrepid Sport Tread" pattern on the Bates outsole, which serves to keep the troops fit and on the alert should they "run into

any action".

From their humble beginnings, as a more durable, supportive running shoe, trail running shoes have developed into a category of their own. It is historically interesting to observe how traditional running shoe companies, such as New Balance, adidas, Nike and Brooks with a "flat surface" running heritage, have been joined by rugged casual and hiking brands, such as Salomon, Merrell, Mephisto and Ecco, to create a more durable, rugged trail shoe category. The prototypical profile of the 'rugged long distance shoe' is a lightweight, breathable mesh upper with synthetic or genuine leather support overlays, a more rigid midsole with torsional shank support, wide forepart and heel platform and rugged, durable semi-lug outsole. Trail running or rugged training shoes are a hybrid cross between running trainers and a lightweight hiking boot. One of the first attempts to make such a shoe was originated by the late Chris Brasher with his orienteering shoes in the 1970s. Under the Brasher brand, orienteering shoes were the first running shoes to accommodate the rugged needs of the cross-country runner/hiker, which of course, is orienteering.

So, what is the world's best "long distance footwear"? Well, by definition we cannot discount the shoes worn by participants in ultra-marathoning. Surely the ultimate in materials testing for any shoe is this type of punishment they are subjected to. Whether it's the Badwater ultra-marathon, a 135-mile (217km) footrace in Death Valley, California, the Comrades Marathon in South Africa (two marathons back-to-back), the Chinmoy Race held annually in Jamaica, NY, where weary warriors circle 1,300 times around a looped course to complete 3,100 miles or the Marathon des Sables (The Marathon of the Sands in the Sahara desert of Southern Morocco), dubbed 'the toughest footrace on earth', they are all equally tough on shoes.

The shoes preferred by ultra-marathoners, seem to be the latest in lightweight trail running shoes, with some notable exceptions such as lightweight hiking boots and military boots being worn by a few participants. As with all competitive sports, the equipment worn or used by the winner can be argued to be the best. Components such as Vibram outsoles, Poron cushioning, Coolmax linings and Spenco sockliners are sure to be found in some of the world's best long distance footwear. 



The Adistar - part of adidas' trail running range.

 adidas