

The Summer Olympic Games is the biggest sporting event on earth, and fashion, fame and flashing lights seem more important to athletes than ever before. Still, amid the public relations extravaganza there are examples of genuine innovation in the clothes and shoes athletes will wear at London 2012.

Let the games begin

Twenty years ago, Barcelona successfully staged the Summer Olympics on a budget of just over \$1.6 billion (the costs of running the Games are usually kept separate from the cost of building new venues and infrastructure). Twelve months on from the 1992 Games, auditors closed the budgets with a surplus of \$3 million. This was amazing news: most Olympic events until then had failed to pay their way (it famously took the city of Montreal 30 years to pay off the debts it incurred from staging the 1976 Summer Games). Barcelona turned this truism around by capitalising on the desire among sponsors to associate their brand names with the biggest sporting event on earth, on the willingness of broadcasters to pay for the privilege of beaming the action into homes around the world, and on the appetite among consumers to buy tickets and official merchandise. Sponsors paid for more than 30% (30.5% if you want the exact total) of the costs of staging Barcelona 1992, with sponsorship revenues 370% higher than at Los Angeles 1984. Television income was 190% higher than at its immediate predecessor but one.

The Olympic Games have kept growing. At the thirtieth Olympiad, which takes place this summer in London, 204 nations will take part, compared to 169 at Barcelona 1992, with 10,500 athletes compared to 9,300 20 years ago. There will be 302 events, compared to 286 at Barcelona, although, curiously, these will be spread across 26 different sports, six fewer than spectators in Barcelona got to see (pelota, roller hockey and baseball are among those not to make the cut this time).

Norway's Olympic javelin gold medallist, Andreas Thorkildsen sporting Li-Ning apparel.



Bigger budget

It stands to reason that London 2012 should also have a bigger budget, which it does. The special company set up to run the Games, the London Organising Committee of the Olympic Games and Paralympic Games Limited (LOCOG), has a core budget of £2 billion, just short of double Barcelona's (at current exchange rates). Sponsors, broadcasters and consumers are, therefore, all going to have to pay more.

All of this means a huge amount of energy is being expended on marketing for the event. There is a hierarchy of sponsors, funnelling down from 11 'Worldwide Olympic Partners', to seven 'London 2012 Olympic Partners', seven 'London 2012 Olympic Supporters' (not the same thing, apparently) and 28 'London 2012 Olympic Providers and Suppliers'. Of the 53 named companies, our estimate is that a maximum of four (textile chemicals manufacturer Dow, sports brand adidas, apparatus manufacturer Gymnova and flooring provider Mondo) have any connection to what the athletes have been preparing for four years to do and what attracts the audiences in the venues and on television; the sport itself. With big budget targets to hit and lots of publicity to generate, it's remarkable that the companies involved in making the clothes, shoes and equipment that will help athletes win medals and push for Olympic and world records have managed to come up with and fund new ideas and engineer improvements into their products, but they have. And we are grateful.

Every nut and bolt

Some of the ideas are small and scarcely new, although interesting nonetheless. A number of the home-team athletes will have the benefit of liquid repellent nano-technology from UK-based P2i on equipment and accessories. Water-repellency and extra buoyancy in swimsuits has been such a controversial subject that we have devoted an entirely separate article to it in this issue (*see Standards in Sport*), but the technology can be used without controversy on hardware for cycling and sailing events. Sailors and cyclists will have harnesses and parts of bicycle frames coated with P2i and any advantage will be welcome because these are two of the sports in which home fans are most optimistic about seeing their favourites on the medal podium, which naturally brings its own pressure.

On announcing the agreement with P2i, Chris Boardman, head of research and development at British Cycling and himself a winner of Olympic gold (in the individual pursuit event at Barcelona 1992), said: "We have learned that the big changes nearly always come from outside the sport, new people bringing new thinking and ideas." He is convinced that attention to

small details such as making moisture slickly run off a bicycle frame, can pay big dividends, insisting as he does that "every detail, every nut and bolt has to be scrutinised and perfected".

Sharp suits from Nike

Big sports brands will apply their innovations more widely. Nike is looking forward to seeing how an initiative it has called Project Swift works out in the heat of competition. Nike "evolved" Project Swift over a lengthy period of time with the simply stated goal of "maximising athlete velocity". These innovations are the result of more than 1,000 hours of wind tunnel testing and insights from some of the fastest athletes in the world. A range of sports will benefit, but Nike insists track and field is at the core.

The developments include Nike Pro Turbo-Speed, a new collection of uniforms for athletes to wear on the track. The suits have zoned aerodynamics. "Just as a golf ball's dimples are designed to help it go farther and faster, Nike uses a similar idea to help reduce the



US sprinter Walter Dix puts the new Nike Pro Turbo-Speed running suit through its paces.

 Nike



Nike's Turbo-Speed suit in Russian team colours.


aerodynamic drag of the athlete," the company states. They incorporate proprietary technology it calls AeroSwift, with special patterns and surface architectures on strategic parts of the exterior of the fabric, "informed directly by wind tunnel data". On the inside, the material is as smooth and lacking in irritation as possible; this includes a new flat, smooth waistband. The company says it wants the suits to cause "zero distraction" to the athletes who will wear them, among whom will be Jamaican-born US 400-metre specialist Sanya Richards-Ross and Chinese 110-metre hurdler Liu Xiang.

Naturally, with the weight of fabrics, garments and shoes such a focus for innovation in the last three years in the wider world of sports and outdoor, Nike has insisted the Pro TurboSpeed collection must also be lightweight. The combined result is what it calls "the greatest aerodynamic drag-reduction of any Nike uniform to date", with the promise, based on those 1,000-plus hours of wind-tunnel tests, of a gain of 0.023 seconds over 100 metres compared to previous Nike sprint-suits, which could mean the difference between being on the medal podium or watching from the sidelines when the anthems sound.

Specific products have been developed for distance, sprint, and field events and there is even strategic colour blocking to make the particular movements of the athletes a more eye-catching spectacle for the watching public. The specific support needs of women athletes have also been taken into account by the Nike design team. And, as well as performance,

Project Swift has paid attention to sustainability. On average, a Pro TurboSpeed uniform uses 82% recycled polyester fabric.

Sports chic

Rival brand adidas has said less about new technologies for London 2012, although it has pointed out that it will supply product for 25 out of the 26 sports that will feature at the Games and that 3,000 athletes will wear something from adidas in London. It has also put emphasis on its support for the sustainability of the Games, pointing out that 90% of the adidas products on show will contain some recycled material. Much of the adidas communication about London 2012 has focused more on the fashion angles (Stella McCartney designed the kit that Team GB will wear in competition, unlike fellow fashion designers Giorgio Armani and Ralph Lauren who have limited themselves to making sure athletes from Italy and the US will look stylish off the track) than on performance. There are three innovations, but each is an updated version of existing proprietary technology, for moisture management, compression and lightweight footwear. These have familiar names: climacool, Techfit Powerweb and adizero, respectively.

Focus on weight and durability

At the last Summer Olympics, in Beijing in 2008, Li Ning, another former gold medal winner (in gymnastics at Los Angeles 1984) stole the show at the opening ceremony. In a bid to put the sports brand that bears his name on the global map, Mr Li persuaded the organisers to let him appear to run through the air across the high part of the Olympic stadium, secured by cables. Since that memorable moment, the Li-Ning Company has had some ups and downs, with international growth probably failing to live up to the founder's hopes. Nevertheless, it's pleasing to note that Li-Ning has also prepared a series of innovations for London 2012.

Highlights include proprietary technology for moisture management, four-way stretch and wind

The Team GB kit for London 2012 contains up-to-date moisture management and compression technology from adidas, although the design, by Stella McCartney, has generated much more publicity - not all of it favourable.





Puma's new evoSPEED footwear collection is based on the shoes Usain Bolt will wear to defend his Olympic title at London 2012.

 Puma

resistance in apparel, respectively called AWS Dry, Stretch and Wind, and a number of innovations to make Li-Ning footwear more cushioned, more durable, lighter and more stable. For example, in terms of weight, a new rubber product (RBlite), and new foam rubber (FoamRBlite) and a new EVA foam material are able to offer savings in weight compared to more conventional materials of 17%, 40% and 30%-40% respectively. Athletes hoping to reap rewards from this innovation include Russian pole-vaulter Yelena Isinbaeva.

Fast or last

Footwear is the main focus for Puma too. In the immediate build-up to London 2012, the company introduced evoSPEED, a new performance collection that covers all the sports that Puma supplies, but is inspired by Usain Bolt, the reigning Olympic 100-metres champion. "The collection answers every athlete's need for speed," Puma says. "All evoSPEED footwear features lightweight materials, increased flexibility and an optimised fit that enables a greater freedom of movement without compromising support, to enhance speed." The collection includes models for football, golf, cricket and motorsports, but it is the running shoes that Usain Bolt will wear to defend his Olympic title at London 2012, with new lightweight midsole cushioning and high levels of breathability and flexibility, that are the real inspiration behind evoSPEED.

Not about the money

This is as it should be. Olympic champions ought to inspire all of us. We would have liked to offer more details of technical innovation in

the performance apparel and footwear athletes will wear at London 2012 and we are sure further examples will come to light as the events unfold. We also understand that economic conditions since Beijing 2008 have been punishingly tough and that research and innovation often take a hit when times are hard. Nevertheless, the Summer Games only take place once every four years, and sports companies must know that any enduring publicity is more likely to come from kitting out competitors who win medals by going swifter, higher and stronger than those whose look is most on trend at the opening ceremony. This is, after all, about sport. When the marketers put down their smartphones and calculators and the boardroom discussions on the value brands can glean from being associated with the Olympics are over, young women and men from every corner of the world will bring us back to what sport is about and what the Olympics are really meant to mean. A hush will fall, athletes will take their positions, a starter's gun will blast and the Games will begin. Long live sport. 

The A305 running shoe is one of the products into which Li-Ning has built its FoamRBlite material, which it says is 40% lighter than ordinary rubber.

 Li-Ning

