

CREDIT: EVERETT COLLECTION / SHUTTERSTOCK

Women and heels

Why have women always loved high heels? Perhaps to increase their stature, perhaps as a fashion accessory or perhaps because they like what they do for their legs and body. For many, particularly in the business world, they could also be about status and impressing male colleagues. A flash of red sole on a pair of expensive Louboutin four-inch heels (about 10cm) says it all. It has come at a price, however, as witnessed by the foot problems many women suffer in later years. It is only then that they realise that, from a medical perspective, raising a woman's foot three or more inches off the ground at the heel and transferring the resulting pitch of the last forward so that it is crammed into a narrow toe is not a good idea.

A high-heeled shoe, as opposed to one with a 'reasonable' lift of 5cm or less at the back, can be defined as one that raises the heel and midfoot above the forefoot. How high the heel bone is raised above mid and forefoot, and at what angle, depends on the height of the heel and the pitch of the last. Typically, a heel more than 5cm at the back causes the midfoot to slant towards the toes at an angle of between 40 and 55 degrees. Clearly, this inflicts pressure and stresses on the foot that it was never designed to sustain. Without exception, high-heeled shoes are not good for the feet. This is not the way in which many women have tended to view things however.

Research carried out some years ago in the USA by Dr. Howard Dananberg DPM, a well known podiatrist, revealed just how important the overall look imparted by wearing high heels was on a woman's psyche. Some women, with naturally high arched

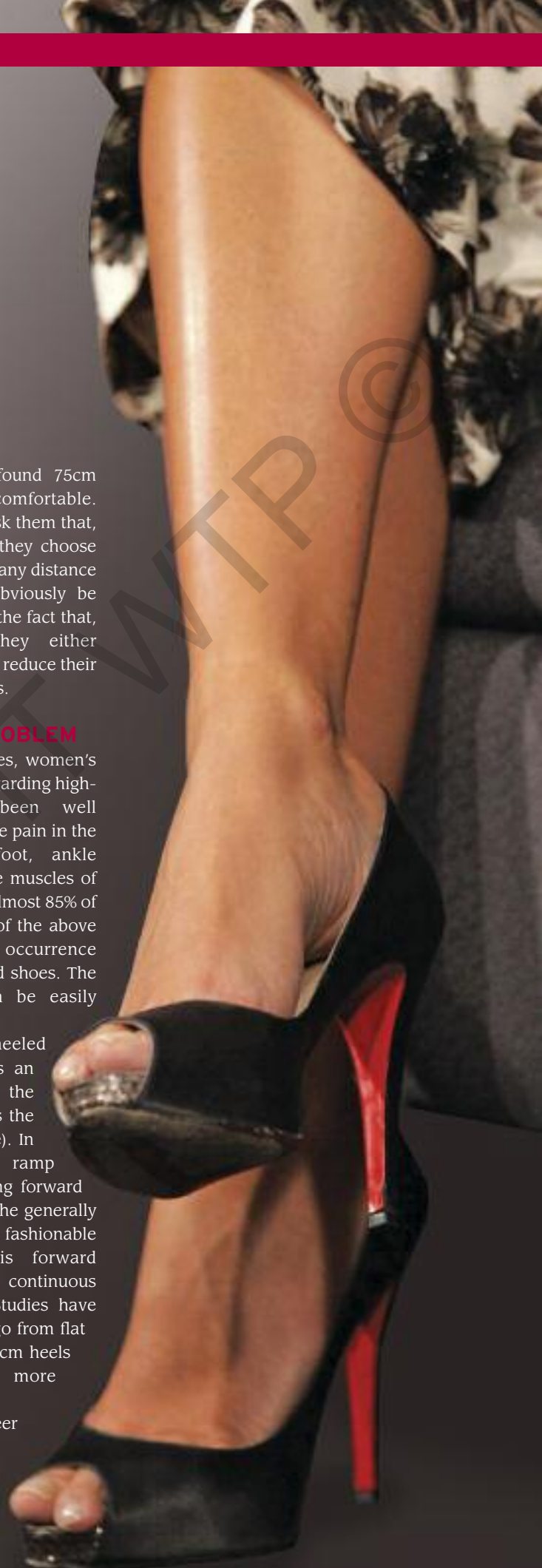
feet, insisted that they found 75cm heels were actually comfortable. However, if you were to ask them that, if given a choice, would they choose these heels to run or walk any distance in, the answer would obviously be "no". This is borne out by the fact that, as women mature, they either voluntarily or are forced to reduce their waking time spent in heels.

A WIDESPREAD PROBLEM

In a number of studies, women's complaints of foot pain regarding high-heeled shoes have been well documented. These include pain in the digits, balls of the foot, ankle instability, and pain in the muscles of the legs and lower back. Almost 85% of women list one or more of the above problems as a regular occurrence when wearing high-heeled shoes. The reason for all this can be easily explained.

The standard high-heeled shoe construction creates an angle of the heel seat to the ground surface (known as the heel pitch or wedge angle). In essence, this creates a ramp effect, with the foot sliding forward into the toe of the shoe. The generally narrow toe, aside from its fashionable attributes, prevents this forward motion and so creates a continuous pressure on the digits. Studies have shown that women who go from flat shoes to ones with only 5cm heels experience up to 64% more pressure to the forefoot.

In the early 2000s, peer pressure to be seen in the latest creations by designers such as Manolo Blahnik caused some female executives



in the USA to choose foot surgery in order to be able to fit into these very narrow shoes with pointed toes and heels as high as 11.5cm. Rather than accept that they would be both more comfortable and find it easier to walk in lower heels, they elected to have injections of collagen into the ball of the foot and the heel. Such a procedure can in fact be beneficial where there are already stress fractures in the foot bones through constantly wearing high heels, although there is always a risk of side effects through swelling. Others, however, even went to the ludicrous extreme of having a complete toe removed by laser surgery to make room for the other four.

ONE SOLUTION

Around the same time, Dr. Dannenberg came up with a novel solution to the problem of high heels: the Insolia System. Heels are directly related to body alignment and weight distribution and therefore cannot be alleviated by padding alone. The Insolia System shifts the weight off the metatarsals and transfers it to the heel of the shoe without altering the height or pitch of the last. This is done biomechanically by incorporating a geometric parabola into the shank area of the insole board combined with an asymmetrical heel cup to seat the heel bone and so redistribute the body's weight towards the heel as opposed towards the toe. At the same time, weight is shifted from the ball of the foot to the heel so that less stress is applied to the forefoot. The shoe still looks the same but functions in a totally different way.

If we accept the ideal normal barefoot distribution is 50/50 between forefoot and heel, and that exaggerated 75cm plus heels change this dynamic to more like 80/20 towards the forefoot, the Insolia System in fact places the foot in the optimal position, relative to the height of the heel. Depending on heel height, stride length and heel-to-toe-gait rhythm, it brings the wearer within the 64/36 forefoot to heel range, which is much closer to the 50/50 ideal.

This is a vast improvement in weight distribution and reduction in pressure on the metatarsals, especially as it is done internally without padding or supports and without changing the all-



Insolia heel component attached to an insole. CREDIT: HBN SHOE LLC

important aesthetic look or height of the shoe. Tests have shown that a woman wearing high heels with standard insoles can experience 64% more forefoot pressure over a pair of athleisure shoes—with Insolia, this can be reduced to 22%. It is understood that over 30 million pairs of shoes fitted with this system have now been sold.

A CHANGE FOR THE BETTER?

Much has changed in the last few years, not least in that for younger women in particular, comfort is the new fashion. Designer Stefano Gabbana has been quoted as saying that 70% of Dolce & Gabbana's footwear business now consists of trainers. Paul Andrew, head of ladies shoes at Ferragamo thinks that the popularity of trainers and athleisure shoes may have been partly responsible for changing women's feet. As well as being a respected designer, he also has an in-depth

knowledge of feet. Having worked with Italian factories for a number of years, he became increasingly aware that although the lasts they used produced beautiful looking shoes, they no longer reflected present day women's feet as regards to fit. A survey of women's feet revealed that they had in fact become wider. A major contributing factor to this is probably the increased wearing of trainers and athleisure shoes for everyday wear which has allowed feet to spread naturally. As a result, he altered the lasts used to produce his shoes by making the arches longer and increasing the width across the tread. Shoes made on these lasts still look beautiful and, importantly, also fit better and are far more comfortable. Common sense at last. However, are we seeing a long term trend towards healthier women's footwear or is this just a relatively brief blip? Quite possibly the latter, as appearances still count. 



Trainer styling has gained enormously at the expense of high heels.

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