

by the woman of to-day has to have a thin, supple sole, with a steel shank, a heel of at least three inches in height, which must taper so that, at the ground, its area is less than a square centimetre. The uppers must be soft and yielding, while the steepest part of the instep must make an angle of 55 degrees with the ground and a bending movement, owing to the steel shank, is only permitted at the junction of the instep and sole, while the toe is pointed to an angle of 35 degrees.

The results of wearing such high heels continuously are:—

1. Extension of the foot at the ankle so that it assumes a drop position, putting the calf muscles at an immediate disadvantage which can only be overcome by a shortening of the muscles and a permanent loss of dorsiflexion.

2. At the same time there is stretching of the extensor muscles, which causes a condition of clawing of the toes.

3. This extra pull on the toes, together with the position of the metatarso-phalangeal joints due to the slope of the shoes causes the weight to be taken on the heads of the metatarsal bones when walking and possibly a dislocation of these joints.

4. More weight is thus taken on the heads of the metatarsals than they are designed for, and less on the heel, which is made for that purpose, the condition being made much worse by the wearing of silk, or anyhow smooth, stockings which slide forwards and downwards on the polished surface of the sole.

The line of the centre of gravity of the body is not thrown out by a heel 2 in. high, as this can be compensated for by dropping the foot into plantar flexion. Three inches, however, exceeds the limit of plantar flexion, and hence the tibiae must incline forwards and remain in that position, a state of affairs which is compensated for in two ways: (1) Either the knee is kept slightly bent in walking and the consequent slight backward inclination of the femur balanced at the hip; or (2) the knee is kept extended and the centre of gravity maintained by an accentuation of the lumbar lordosis and a prominence of the buttocks, which conforms to the appearance seen in pregnancy. Sometimes both these methods are combined, giving rise then to that mincing gait which is so commonly seen nowadays. As well as producing these changes in the feet, high heels may also be a predisposing cause in those numerous cases of strain and pain in the sacro-iliac joints, which have received such attention in gynaecological as well as in orthopaedic circles in recent years.

Unfortunately, however, many of these effects of high heels, worn so blithely and with such pride in adolescence and early adult life, are neither realised nor appreciated until middle-age; and young people with the spirit of youth, rather than miss the pleasures which follow in the wake of a pretty ankle, trimly shod, are prepared to take the chance of a middle-aged spot of pain.

These, then, are the shoes which SHOULD NOT BE WORN CONTINUOUSLY. I say "continuously," for an occasional evening out on high heels does not do much harm. Now you may ask what type of shoe you *can* wear with safety and without being looked upon as being deformed . . .

A 2-in. heel is reasonable, a 3-in. heel is too high, especially if it is of the narrow FRENCH type. The CUBAN heel is actually the best compromise. The sole should be flat to allow the big toe joint to come to the ground; many shoes prevent this by having the sole markedly convex so that the great and little toes are slung up while the three middle ones only are in contact with the ground. It is impossible nowadays to avoid a central toe; but there are many shoes in which the inner border is very nearly straight, and, if possible, this is the type to wear. The slope of the sole should not be a simple incline; there should be a fairly horizontal area under the heel. Thus: a CUBAN HEEL, a FLAT SOLE, a FAIRLY STRAIGHT INNER BORDER

in a SHOE THAT DOES NOT CRAMP THE FOREFOOT when weight is taken on it is the best to aim at to-day.

The Anatomy of the Foot.

In all Anatomy text-books the foot is described as being composed of a series of arches maintained in position by ligaments and tendons. The main arch described is the *longitudinal*, which is divided into two—a medial and lateral—arch. The *medial arch* is composed of, roughly, the inner two-thirds of the foot. Its weakest part is the joint between the astragalus and scaphoid; but this is braced by the strong ligament which passes from the os calcis to the scaphoid. This not only unites the os calcis and scaphoid but supports the head of the astragalus. This ligament is in turn supported by the tendons of the inner side of the ankle. The *lateral arch* is composed of, roughly, the outer one-third of the foot. Its important ligaments are: (1) The long plantar ligament, which is attached posteriorly to the plantar surface of the os calcis and anteriorly to the ridge of the cuboid; (2) the short plantar ligament, which lies nearer to the bones than the preceding one and stretches from the os calcis to the adjacent part of the plantar surface of the cuboid. The ligament is supported by the tendon of peroneus longus and the short muscles of the little toe. In addition to this, the foot is said to have a transverse arch. Owing to the shape of the *bases* of the metatarsals and the cuneiforms, there is definitely an arch at this site; but in front, under the heads of the metatarsals, there should not be any; when the weight is taken on the foot, all the heads of the metatarsals should take the weight evenly. These bones are also bound together by ligaments, the most important being that joining the heads of the metatarsals. As well as these structures, there are those small but very important muscles of the sole of the foot.

Corns.

I think it is safe to say that the commonest foot ailment is a CORN. Pathologically, a corn is a benign, epithelial outgrowth which occurs in cases where there is *intermittent* pressure from without and solid resistance from within. I say "intermittent" here deliberately, as, were the pressure continuous, a degeneration only of the tissues would occur and result in a sore, like a bedsore. The pressure from without is usually a tight shoe, the resistance from within a hammer toe, which is also the result of ill-fitting shoes. Corns occur commonly on the dorsal aspect or tip of such deformed toes. These hard corns rarely occur on the soles of feet, on account of the broader area over which the pressure occurs and the presence of a thick fibro-fatty layer which separates the skin from the bone. CORNS are classified thus:—

1. *Hard*, as above described.
2. *Soft*, where skin approaches skin, as between the toes, usually over the bony interphalangeal joints.
3. *Seed*. These resemble a callosity, with here and there a separate nucleus resembling a millet seed, affecting the heel and plantar arch in dry skins.
4. *Neuro and vascular corns*. These occur where the dermis approaches the surface between small horny nuclei—neuro—when they are very sensitive—vascular when they bleed easily when pared. They occur in moist skins with poor circulation.

The Prevention is obvious, but impossible—go without boots or shoes. The nearest we can approach to this ideal is to be careful in our selection of shoes.

Treatment. There are many ways of dealing with a corn:—

1. *Paring*—*i.e.*, after bathing the feet, removing the horny layers with a knife. This will not cure the condition unless sepsis intervenes, but will relieve the pain by reducing the pressure on the sensitive area at the apex of a corn.

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