跑鞋設計概述（二）
Running shoes review II

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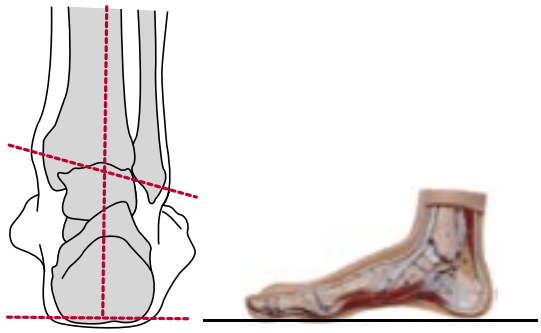
上一期概括地介紹了一般跑鞋常見的設計，今期將會集中分析不同的足型應配合什麼類型的跑鞋，才可以減少受傷或勞損的機會。

世上沒有一雙完美的跑鞋，只有最配合自己腳型和用途的跑鞋。嚴格來說，因應不同運動類型、賽程、環境氣候、地面情況和運動員本身的運動強度，不同足型便應配合不同的鞋款。事實上，跑鞋製造商在近年都已因應不同環境變數，而生產不同的鞋款。但不正常足型的分類逾百種，大部分鞋廠商因為資源有限，通常只會把鞋型的設計分為三大類：一、正常足型；二、高足弓、硬足型；三、扁平足、軟足型。

In the last issue, I briefly reviewed the design of popular running shoes; this issue will give an insight into the kinds of shoes needed for various foot types to reduce the chance of you getting injured or the shoes getting speedily worn out.

There are no perfect running shoes in the world but only those that are appropriate and suitable. Strictly speaking, different feet require different shoe types, depending on the type of sport, game duration, climate and weather, ground situation and the performance level of the athletes. In recent years, running shoe manufacturers have designed different shoe types that suit numerous environment variations. Nevertheless, there are hundreds of classifications on abnormal foot types, most manufacturers lack resources to give detailed categorisations, meaning they classify into 3 types of shoe designs: 1, Normal Feet; 2, High Arch Feet, Hypomobile Feet; 3, Flat Feet, Hypermobile Feet.



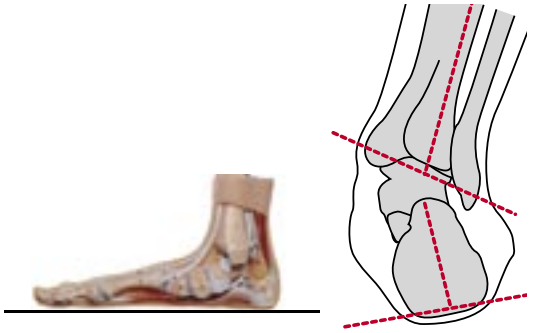
右腳 Right Foot

正常足型 ── 足踝關節軸心正中，腳部三個足弓橋位位置適中，足部的關節及軟組織亦沒有過緊或過軟；走路時足底受壓的重心位置沒有太大偏移正常的傳送的路線（圖一），所以可選擇任何正常的鞋款。

Normal Feet – the ankle joint axis is in neutral position; the three arches of the feet are in proper positions; the joints and soft tissues of the feet are not over tight or over soft; the centre of pressure of weight bearing does not deviate from the line of transmission (Fig. 1). . Normal feet can fit into any normal shoe types.

高足弓、硬足型 ── 患高足弓的人較少，但通常內足弓過高，都伴隨足部肌肉及關節過緊，以致走路時足底部位吸震能力較差，長久下去容易引起很多勞損性的傷患，例如足底筋膜炎或前掌部位的多種痛症等等，所以適宜配襯軟墊形的鞋款，提供足夠的吸震能力。

High arches, Hypomobile feet –Fewer people have high arches. An excessively elevated arch is also associated with tight the muscle and joint. This affects the shock absorption ability of the feet which can cause many overshoes injuries such as plantar fascistic and different kind of forefoot pain syndrome. A high arch requires cushioned shoes with soft soles so as to provide adequate shock absorption.

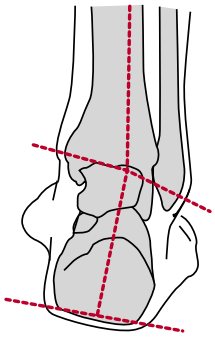


右腳 Right Foot

扁平足、軟足型 ── 文獻綜論指出大概有三分之一人有不同程度的扁平足，但我的經驗是亞洲人多更易患有扁平足。所謂扁平足，泛指足部內側下塌引致觀感上扁平的變異。其實，構成扁平足的原因有很多，亦可作更細緻的分類，有如局部性的舟骨或跟骨有過多的外翻情況，或脛骨後肌過弱等。形成這些長期變形的問題，又與足底筋膜發炎、內足弓軟組織疼痛或大趾向外歪斜等有關。我臨床的實際經驗發現，單靠治療訓練或改善步姿，不可能完全根治這些問題，很多時都要穿著一些支撐性的鞋款去改善情況。除了鞋的型號外，鞋商很多時會加上 Control 或 Pronator 等字眼以資識別。假如足部變形太嚴重，最好還是找義肢矯形師度身訂造一對鞋墊。不要胡亂配襯鞋墊，要找出引致外觀上扁平足背後的真正問題癥結，特製的鞋墊才能發揮它最好的功效。

右腳 Right Foot

Flat feet, Hypermobile feet – Statistics show 1 out of 3 people have flat feet to a certain degree, but my experience tells me most Asians have flat feet. Flat feet occur when the medial arch of the foot collapses and the foot appears flat. There are many causes of flat feet. There are more detailed classifications such as an over-pronated navicular and/or calcaneum (heelbone) or tibialis posterior dysfunction. If deformity develops, it increases chance of getting one kind of foot disorders such as a plantar fascia (sole pain), medial arch pain and a distorted big toe (Hallux valgus). From my clinical experience, therapeutic training and gait correction cannot cure these problems. Support shoes are needed in many cases and they are usually marked with "Control" or "Pronator" besides the shoe size for easy identification. If the deformity is serious, the best thing to do is to find a Prosthetist and Orthotist for prescribe a tailor-made insole. One should not choose orthotics recklessly because a pair of insole is only effective when it can correct the real underlying problem of foot deformities which exactly be identified by therapists.



右腳 Right Foot

什麼是支撐型鞋款？

支撐型鞋款最主要的設計，是鞋的中底位置由兩種不同硬度的吸震物料所黏合而成。外側部份用軟的物料，而內側部分則用硬的物料。這個設計可以減慢足部外翻（內足弓下塌）的速度及程度。絕大部份人都用腳跟的外側部著地，因此身體的重量是由外側傳向內側地輸送向前，直至由大母趾作足背屈來發力蹬腿向前。所以雙層密度的中底設計，便有效地配合足部外翻的現象，減低外翻的速度。如前文提及，減少過度足部外翻可減低連帶的勞損傷患，如足底筋膜炎，膝痛等……不過，我要重申，假如扁平足的情況嚴重，還是要配合特製的鞋墊。

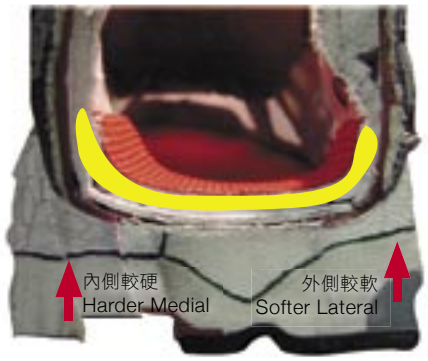
另外，還有很多鞋款設計都有助增強支撐，例如跑鞋內籠設計成有幾度外傾等，把外翻的跟骨托回較正中的位置，或者加強鞋內側及跟骨位置物料的硬度（圖二），亦有助減少過份外翻的情況。

What are Support Shoes?

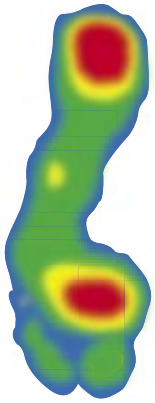
The mid sole of support shoes is made up of two kinds of shock absorption material in different degrees of hardness; the inner part of the shoe is made of soft material while the outer part of the shoe is made of hard material. This helps to reduce the degree and speed of the pronation (lowering of inner foot arch). When we walk, the outer heel touches the ground first and the pressure from our body is transmitted from the outer side to the inner side, until the big toe curves and we step forward. A dual-density midsole thus reduces the speed of the pronation and overshoes injuries such as plantar fascistic or knee pain, but as just mentioned, if the symptoms are obvious, one should acquire specially designed insoles.

Another shoe design enhancing support and reducing over pronation is that of running shoes with a built in medial wedge which realign a more neutral calcaneum, or uses harder materials for the inner quarter and the heel counter (Fig. 2).

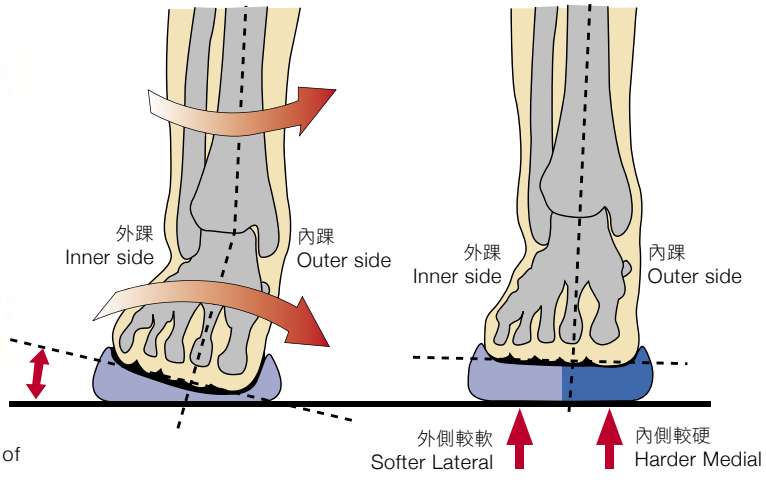
過度內翻足型需要配合雙層密度的中底設計。
For hyperpronated foot, support shoes with dual density of midsole are needed.



❷ U-型加硬支撐物料
U-Shape hard supporting material



❶ 足部受壓的重心的傳送方向
Direction flow of centre of pressure of weight bearing



當然，特別的鞋款設計還有很多，所針對的問題亦很複雜，實在不易單靠文字去描述，希望日後有機會與有興趣的朋友，面對面教授更多有關鞋的知識。事實上，我個人認為，一個專業的跑步運動員或跑鞋售貨員，都必要具備多點相關的知識。

There are many other special shoe designs which focus on very complex problems but they are difficult to describe on paper. I wish I were able to meet those who are interested in this topic and offer more to them. Personally, I believe professional runners and shoe salespeople should learn more on the issue.