跑步運動愛好者常見膝患
Common runner's knee injuries

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適當的跑步運動是有益身心的樂事，但不少人卻遇到不同形式的傷患。相信喜愛運動的您會想知道更多戶外運動常見的傷患，那麼，就讓我為您介紹什麼是髂脛束磨擦綜合症！

Running can be fun and healthy but may also cause injuries. We all like to learn more about common runner's knee injures, so let us take a look at the causes of and the possible treatments for Iliotibial Band Friction Syndrome (ITBFS).

根據2002年英國一份有關跑步運動創傷的研究報告(Taunton et al, 2002)指出(見附圖)，大部分傷患都集中在足踝和膝部，而且排第一位的創傷是上次已經介紹過的髕股關節綜合症；排第二位的是髂脛束磨擦綜合症。香港各類大型比賽，雖然沒有系統化的統計，但是就我們的運動物理治療支援隊伍「出動」時所見，患上髂脛束磨擦綜合症的跑手比患上髕股關節綜合症的還要多。我相信是因為香港的長跑或跑山的比賽上落差比外國大，而且地面比較硬，加上亞洲人傾向有不良腳型，以及繁忙的生活節奏令參加者準備和訓練不足等等所致。

髂脛束磨擦綜合症是最常見的外膝痛症，並且容易誘發其他膝痛病症。很多年青跑手或行山人士，膝部雖然沒有受過明顯創傷(如韌帶撕裂)，卻在訓練或比賽途中，大脾或膝部外側漸漸發出隱痛，嚴重時痛楚會伸延至脛骨，並引發起紅、熱、腫脹及膝蓋底痛，屈伸困難，特別在落山或落樓梯時要鎖直膝關節，避免屈膝，減輕劇痛。病症初期，痛楚較輕微，通常只是在運動後，膝部外側有少許隱隱作痛，休息或冰敷後痛楚便消失。但這病症如果得不到適當的治療，痛楚便會加劇，連日常生活或休息時亦會感到疼痛。如果病症惡化，運動員甚至被迫要放棄運動生涯。

大部分人以為這不過是疲勞過度或是必然的勞損現象，但其實成因頗複雜。髂脛束是大腿外側一條非常厚韌的軟組織，主要連接股關節和肌肉至膝部外下側和髕骨。Zachazewski (1996)解釋當它的柔韌性不足，以及經過不斷重覆的膝關節屈伸，與股骨外髁的磨擦，便會引起發炎、疼痛，甚至阻礙髕骨正常的滑動而誘發膝蓋痛。Taunton et al (2002)和Kirk et al (2000)綜合近年的研究，得出生理結構異常(如膝外翻、扁平日足、脛骨或股骨變形、長短腳和大Q角度等)會使髂脛束等周邊組織過度磨擦。另外，從運動生物力學的角度去解釋，內膝肌力和股中肌過弱或不協調，都會加重不良跑姿(習慣性內旋，過度或過少膝屈，脛骨前旋等)對此病症的影響。還有，地面過硬、過多下山、走梯級路、訓練不足等更易誘發此病症。Orchard et al (1996)亦發現單一向性的重覆動作(如長跑)，比起多改變向性或急促的運動(如藍球、短跑等)更易引發炎症。所以衛徑長征這一種多梯級的耐力比賽，最易誘發髂脛束磨擦綜合症，我的朋友亞Yan(獲女子全程組別冠軍)就在今年這一役之後受了傷，現在才差不多康復過來。

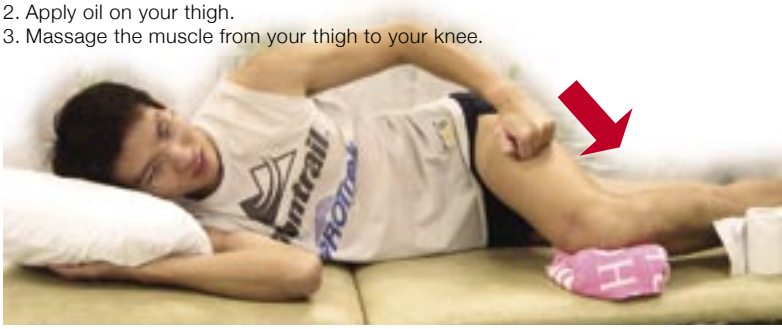
According to British research (Taunton et al, 2002), most sport injuries caused by running are on the knee and ankle. The most common injury is Patellofemoral Pain Syndrome (PFPS, which I mentioned last time) and the second most common injury is Iliotibial Band Friction Syndrome (ITBFS). Although there are no systematic injury statistics from Hong Kong running events, from my personal experience and the statistics of our on-field physio team, the number of athletes suffering from ITBFS outnumbers those with PFPS. My explanation is that most marathon competitions in Hong Kong follow routes that involve much greater altitude differences compared to those in other countries and the land texture is much harder. In addition, abnormal feet shapes are common among Asians and the busy lifestyles which may curtail preparation and training also contribute to the injuries.

ITBFS is the most common lateral knee pain and may easily trigger other types of knee pain. Many young runners or hikers have a penetrating dull ache on their outer thigh and knee in the middle of training or competition but have no obvious injuries before (such as a ligmentous tear). The pain extends to the tibia bone, swells and causes pain on the patella. It is obvious when the patient has difficulty in flexing their knee and finds it extremely painful when descending hills or stairs. In the early period, it is only a light pain on the outer side of the knee usually after exercising and can be soothed by resting or applying ice. However, without appropriate treatment, the pain persists in their daily life or even rest. In the worst case, the athlete may have to retire.

髂脛束理筋法(大腿外側) Iliotibial band release

1. 側卧，保持膝部屈曲。
2. 大脾外側搽一些潤滑液。
3. 用手按摩大脾外側至外膝部位。

1. Lie on your side and keep your leg bend.
2. Apply oil on your thigh.
3. Massage the muscle from your thigh to your knee.



髂脛束磨擦綜合症的預防及治療方法有很多。冰敷、電療及服用消炎止痛藥有效緩解炎症，但減少髂脛束磨擦和受壓才是治本之法。根據我的個人經驗和近年的研究發現，只是伸展繃緊的髂脛束效果不太理想，反而一些適當的鬆解髂脛束的理筋刮法更加有效。Mercer et al (1998) 從功能解剖學的角度解釋，多伸展四頭肌有助鬆解髂脛束，因為股內側肌和股中間肌(四頭肌的其中兩組肌肉) 有很多地方與髂脛束黏連在一起。強化四頭肌、股內側肌、股大肌及中肌等肌耐力訓練亦很重要，有效減少因肌肉疲勞而引起的不良跑姿(習慣性內旋等) ，說到底，最重要的是任何時候都要注意跑姿。另外，還要選用配合足形的鞋墊和運動鞋以糾正不正常的生物力學結構。不過要分析不正常的生物力學、足型、步姿及跑姿卻很複雜，想解開問題的晶結，唯有請運動創傷專科的物理治療師作詳細的檢查、矯正不正常的生物力學，及提供康復訓練的特別運動療法。

香港的長跑或跑山比賽上落差比外國大，而且地面比較硬，加上亞洲人傾向有不良腳型，以及繁忙生活節奏。

一般復康訓練的書藉所提到的改變活動模式，例如在草地上緩步跑、游泳、水中跑步或踏單車代替原來的訓練，以及減少膝蓋嚴重受力的運動，例如蹲跳、疾跑、下山跑、上落樓梯等，有一定效用。但對於一些嚴重的患者或精英運動員來說，下肢發力、膝屈、著地的角度、頻率及頻數(Orchard et al, 1996; Farrell et al, 2003) 就要更加針酌，才能漸漸回復從前的訓練水平。這相信要請熟悉跑步科學的治療師貼身和針對性地跟進。

我是一個「身經百戰」的越野賽運動員，我這個「容易受傷的男人」也曾三度患有這種痛症。朋友笑我能醫不自醫，其實我多多少少想縱容自己淪為自己的實驗品，自覺也有點心理不平衡。這種痛症有一個致命的誘因，就是我有很多香港人都有的通病 — 工務纏身、訓練不足，身體一時未能適應重大的負荷。加上頻密的比賽令膝痛復原不足，而兩者之間又很難取捨。身為運

Many think that the cause of this injury is wear or unavoidable degeneration but the actual cause is rather complicated. The iliotibial band (ITB) is a very thick and inelastic soft tissue on the lateral thigh, originating from the hip joint and muscles, going into the lower part of the knee and the patella. Zachazewski's (1996) explanation is that when the ITB becomes tight, repetitive knee bending and increased rubbing at the femoral lateral epicondyle (a bony prominence at lateral knee) will swell and cause inflammation of this band. If the case worsens, it will alter the smooth movement of the patella inside the femoral groove and trigger pain at the knee cap as well. Taunton et al (2002) and Kirk et al (2000) concluded from their recent research that pathobiomechanics (such as abnormal tibia and femur alignment, flat feet, leg length discrepancy and large Q angle) would cause friction on the ITB and surrounding tissues. From the sport biomechanics point of view, weak or incompatible hip adductors, vastus medialis and gluteus medius muscles aggravate abnormal running posture (such as over-pronation, over or under bending of knee) and worsen the case. In addition, hard ground, too many hill descents and stepped ascents and a lack of training all contribute to the cause of pain. Orchard et al (1996) found that single plane movement repetitive sport (like long runs) increases the possibility of inflammation more than multi-plane or quick sport (like short runs or basketball playing). Therefore, competitions that require numerous stepped climbs like The Wilson Trail Challenge easily cause ITBFS. Yan, a friend of mine and the champion of the girl's open, was injured after this year's challenge and is still recovering.

There are various ways to cure and prevent ITBFS. Ice and electrical modalities and the taking of non-steroid anti-inflammatory drugs (NSAIDs) can help to ease the inflammation. However, to really cure the disease, the best way is to reduce the friction and stress at the ITB. From my personal experience and recent research, ITB stretching exercises are not as effective as expected, whereas, muscle relaxation and myofascial release techniques are more effective at releasing this tightened ITB. In view of functional anatomy analysis, Mercer et al (1998) suggest it is still useful to do stretching on vastus lateralis (VL) and vastus intermedius (VI) (two muscle groups of a Quadriceps), but not the ITB, as the ITB is too inelastic to stretch. However, the ITB is adhered with VL and VI so stretching VL and VI may increase the flexibility of the ITB indirectly. On the other hand, strengthening the Quadriceps, vastus medialis oblique, gluteus maximus and gluteus medius can improve abnormal running postures (such as over-pronation). After all, we should be aware of our running postures all the time. Apart from the above suggestions, suitable insole

十大常見跑步運動傷患 Ten common sport injuries cause by running

常見傷患 Common Injury	男 (人數) Men (No.)	女 (人數) Women (No.)	合共人數 Total
髕股關節綜合症 Patella femoral pain syndrome	124	207	331
髂脛束磨擦綜合症 Iliotibial band friction syndrome	63	105	168
跖腱膜炎 Plantar facsiitis	85	73	158
半月板創傷 Meniscal injuries	69	31	100
脛骨應力綜合症 Tibial stress syndrome	43	56	99
髕骨韌帶發炎 Patella tendinitis	55	41	96
跟腱發炎 Achilles tendinitis	56	40	96
股中肌創傷 Gluteus medius injuries	17	53	70
脛骨應力性骨裂 / 骨折 Stress fracture - tibia	27	40	67
脊椎受傷 Spinal injuries	24	23	47
總數 Total	**563**	**669**	**1232**

動物理治療師，我最想挑戰這道難題，而不是做一個只懂叫人休息、再休息的醫療人員。

回想起第一次患此痛症，整整四個月不能跑步，經過反覆實踐不同的治療方法，到第三次再受傷時，只需兩星期的治療就可以重新參與比賽。我的秘訣是嚴謹地控制好炎症，然後盡快配合黏膏帶紮貼法、特別運動療法來重新訓練。訓練的模式和增量速度要控制得非常仔細嚴謹。針灸是控制這種炎症的最好方法，經過我反覆針刺自己不同的反應點、各軟組織的聯接處和那些常用的穴位後，我發現書本上建議的風市穴並不是最有效，反而針刺一些靠近膝關節的肌腱聯接處，效果更為顯注。翻查近年相關研究的零星案例(Nemeth & Sanders, 1996; Costa et al, 2003)，有學者發現患者不單只髂脛束有發炎跡象，靠近膝關節的水囊和關節囊延展部份亦會發炎。這意味針灸可能對那些組織有一定的功效，不過我這種推論當然還需要更多學者的反覆研究。

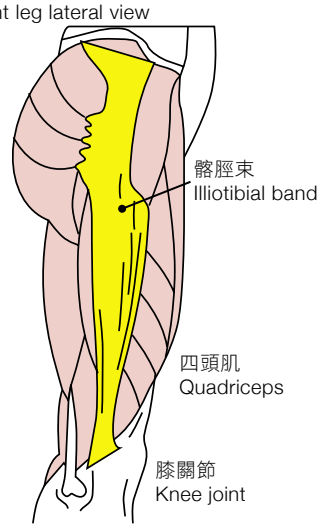
臀中肌 Gluteus Medius

1. 側卧，雙膝屈曲成90度。
2. 大脾慢慢提起 (即分腿) 。
3. 保持髖部和足部不可擺動。

1. Lie on your side and band your knees at 90°
2. Raise your tight slowing (separating your legs)
3. Do not swing your hipbone and your feet.

股大肌及股中肌 Gluteus masimus & gluteus medius

右腿側面圖
Right leg lateral view



我在理工大學正進行一項有關膝痛的研究，集中分析如何改善膝蓋內外側力量失衡的情況。如果您是40歲以下，有一星期跑 10 km或以上的習慣，膝部不曾有明顯創傷，卻有前膝痛的情況，可電郵給我 **eltonn@gmail.com**，查看是否可詳細檢查以診斷膝痛的由來。完成後我會給予您相應的建議。

I am currently conducting research at the Hong Kong Polytechnic University on patella pain, on balancing the tensions of the kneecap, and thus reducing the chance of patella maltracking by exercising. If you are under forty and have a habit of running 10km a week, no obvious injury to the knee but have pain at the knee cap, you may email me at **eltonn@gmail.com**. We will see if you need a full-scale examination and I may provide you with advice on the cause and the treatment of the pain.

and running shoes can achieve a better biomechanical alignment. In the long run, to alter the pathobiomechanics, you may need to consult a sport physiotherapist who would be able to analyze your biomechanics system, foot shape, walking and running postures and provide you with specific sport rehabilitative training.

Rehabilitation training such as jogging on lawns, swimming, running in water and cycling are used to replace ordinary sport training. Avoid jumping, sprinting, running downhill and climbing stairs which put a lot of stress on the ITB. However for serious injuries or outstanding athletes, you' should consult a therapist specialized in running science to decide on a detailed training protocol which will train you at definite and specific force and joint angle, frequency and landing posture in different stages, so as to recover the previous high performance level.

As a sport physiotherapist and a mountain marathon athlete, I have overcome different challenges and have been caught by this syndrome three times. My friends always tease me and say I can not cure myself. It may sound strange but I really want to be a guinea pig and try various treatments on myself. I am facing the same problems as other people living in Hong Kong – tied up by too many tasks and lack of training, which predisposes me to this syndrome. Frequent competitions hinder injury recovery but it is always difficult to choose between competition and recovery. Therefore, I want to be an experienced sport physiotherapist who can overcome this challenge rather than simply telling my patients to rest, rest and rest only.

My first injury cost me a four month recovery. During that time, I had to stop all my training and running activities. After repeating various treatments, my hands became experienced. By my third injury, it only took me 2 weeks to recover and I could join competitions soon afterwards. The secret was to intensively control the inflammation, and then apply sport tapes for an early therapeutic re-training, change the training mode and progress carefully and accurately. Acupuncture is an excellent way to control the inflammation, I discovered. I have tried different acu-points and soft tissue attachment points and found that applying acupuncture on the points that are close to the fibrous connective tissue and the capsular extension near the knee joint have more obvious effects than that on the "Fengshi" (GB31) acu-point as suggested by most classic reference books. Browsing recent related cases (Nemeth & Sanders, 1996 and Costa et al, 2003), I have found researchers discovered that some patients not only had inflammation at the ITB, but also in the cysts and synovial recess of knee joint. This implied that applying acupuncture on these tissues may be an additional curing method. However, this theory needs to be further examined and studied.

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