

運動物理治療與常見的膝患

An introduction of Sport Physiotherapy and common knee injury

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上期簡略介紹過運動物理治療師在賽事中的角色後，有讀者回應說有興趣知道，治療師如何在「兩手空空」的情況下，即場為受傷運動員診斷傷勢。

After reading the short introduction to what sport physiotherapists do on the sports ground, some readers have written to say that, they would like to know more about how physiotherapists examine the athletes' injuries.

其實，憑著解剖學、生物醫學和運動生物力學的深厚認知，我們確有自己一套的思考邏輯，以協助我們在資源缺乏的情況下，盡快為受傷運動員診斷傷勢和治療。而診斷結果大致可分為醫學診斷和物理診斷。

一般急救員或醫生都會把常見的「拗柴」，判為「足部扭傷」，這是醫學診斷，對於一般的包紮固定或開用消炎止痛藥等治療方法來說，這個「簡單」的斷症已足夠。但對於運動物理治療師或運動創傷科醫生來說，這種斷症名詞還不夠仔細。我們還要利用很多不同的測試手法甚至儀器來幫助得出一個精確的斷症，稱為物理診斷。舉例說，一般的「足部扭傷」個案，經過我們的檢查，最終可能會診斷

By combining our profound knowledge of Anatomy, Sports Biomechanics and Medical Biology, skilful physiotherapists are able to examine and give treatments to the injured athlete in a short time, even though there is no medical equipment on the sports ground, whereas, there are 2 types of diagnosis — Medical diagnosis and physical diagnosis.

Most of first-aiders or medical doctors define a common broken ankle as a sprained ankle. This is a Medical Diagnosis that is quite 'rough' but fairly enough to describe a condition only requires bandaging up and stabilizing, or for prescribing anti-inflammatory drugs. However, this would not be considered a full-scale diagnosis for sport physiotherapists or doctors in sport injury field who apply different physical examination methods and even medical

apparatus before making a diagnosis. In the above example, a sprained ankle may be defined as 'anterior talofibular ligament Grade II tear' after our examination.

Accurate physical diagnosis will help physiotherapists to give specific treatments; to decide if the injured athlete can go back to the sports ground or needs surgery and a suitable rehabilitation process. Physiotherapists examine the injured athlete using their observation (sight), subjective examination (asking them questions) and objective examination (touch). Examine by sight is to observe if it is abnormal on the colours, shapes, sizes, types of swelling, soft tissue or structural (bony) alignment. Sometimes, how the athlete sits, walks, or runs will also give clues to the examination. Physiotherapists also need to compare the difference between the injured and uninjured side in order to

Stretching Exercises 伸展運動



右脛脛束(右大腿外側) Right Iliotibial Band

1. 交叉右腳於後方站。
 2. 把身體重心降低及彎向左侧，直至感到右大腿外側拉緊。
1. Stand up with your right leg crossed at the back.
2. Lower your centre of gravity and bend to the left until you feel the tension of your left thigh.



右四頭肌(右大腿前面) Right Quadriceps

1. 站著，用左手把右腳屈起。
 2. 保持腰挺直，直至感到右大腿前面肌肉拉緊。
1. Lift your right leg towards your hip with your left hand while standing.
2. Keep standing straight, until you feel the tension of your front left thigh.

Tips & Technique

為「前距腓關節韌帶第二級撕裂」。

精確的物理診斷有助我們作出針對性的治療，判別傷者能否重返賽道，甚至是否需要接受手術以及決定康復的進程。至於在受傷現場，我們只憑雙手去斷症及治療，自然對診斷手法和技巧的準繩度和敏感度要求更高。

行山或跑步的人最常遇到的是前膝痛症 (髕股關節綜合症)

以上所說的診斷的手法大致可分為望診、問診和觸診。望診就是用眼睛去觀察患處的異樣，包括患處的色澤、腫脹的類別、軟組織或硬組織有否變形，甚至可觀察因坐姿、步姿或跑姿不良而引起的病患。觀察時，很多時都會比較患側與健側的分別，以協助斷症。

第二，問診，亦是很重要的環節。很多傷者都會感到奇怪，運動物理治療師要問很多不同的問題才會開始檢查。但其實一套有系統的問診方法是極其重要的。一開始，通常都會問傷者的主訴以鎖定傷患範圍、評估的方法及可惹性。之後通常都會問受傷原因以判別傷患是急性、慢性、緩發或是繼發性。而問受傷機制就有助評估傷患程度及位置。另外，問一些誘增或緩解主訴的方法或動作，便有助指示檢查

方向和要避免的事項。治療師更要知道傷者有沒有功能性障礙，例如走路等，以定下檢查底線，治療目標及用作治療後比較進展。最後，要詢問病史和舊患以評估與今次傷患的關連性。

觸診是斷症最重要的一個環節。透過望診和問診，對該傷患有一定的概念後，觸診就可以更快更準確。一開始，治療師通常會先用雙手感受一下受傷組織的情況，如順暢性、穩定性、障礙性等。然後，再會用一些基本測試，如主動運動測試、被動運動和肌肉等長收縮測試等，概括地分辨傷患是源於收縮性組織、關節及周邊組織、外周神經、循環系統組織或其他身體組織(例如：硬骨、內臟等)。要再仔細地分辨受傷組織及類別，其實不同的韌帶、關節、關節囊及周邊組織、硬骨、骨膜、肌肉、肌膜、肌腱、韌鞘、軟骨、半月板、脂肪體、滑液囊、神經、淋巴或循環系統組織等等都有其獨特的檢查及治療的手法，這些都是運動治療師要窮一生時間去學習的知識，現不詳述。

另外有讀者想知道，行山或跑步的人最常遇到的是那一類傷患。我相信是前膝痛症(髕股關節綜合症)吧！其實，很多年青運動員，膝部雖不曾受過明顯創傷(如韌帶撕裂)，卻在蹲下、上落樓梯或久坐後站立時有膝痛的情況。大部分人都以為這些只是疲勞過度或是一些必然的退化現象，但其實可能是患上髕股關節綜合症。近年研究顯示膝關節外側的軟組織過緊、

have a clear clinical picture.

People often feel annoyed at the many questions asked by physiotherapists. However, a systematic series of questions is crucial for the subjective examination. By asking questions, a physiotherapist will be able to find out the chief complaint and the cause of the injury. The chief complaint will help to provide clues to the injured area, the assessment methods and irritability of symptoms while the cause of the injury will help to define whether it is an acute, subacute, chronic or secondary injury. On the other hand, knowing the injury mechanism is important in predicting the level of injury and involved body parts. Aggravating factors or easing factors of comparable symptoms will also be asked in order to set the direction and limitation of following assessments. Physiotherapists also need to know if the injured athlete has any functional limitations like difficulty in walking and other past medical history which will help to make comparisons and set the treatment goals.

After the observation and subjective examination, physiotherapists will have already a basic understanding of that injury and are easier to get into objective examination. First of all, palpation of the smoothness, the hindrance and the stability of involved body parts by our experienced hands can give many messages about what's wrong inside. After that, series of tests aim on active movement, passive mobilization and isometric muscle contractions will be carried out in order to define whether the injury involves the contractile (soft tissue) or non-contractile (bony) tissues; or peripheral nervous or circulatory system or other parts of the body (bones or internal organs etc.).

— Release & mobilization techniques 鬆解及理筋手法 —



—— 髕腰索理筋法(大腿外側) Iliotibial band release ——

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

—— Strengthening Exercise 肌肉強化運動 ——



—— 右臀大肌 Gluteus Maximus ——

1. 提高左腳，並頂向牆。
2. 右腳單腳站立，注意右膝要微曲約5度，保持提升右腳內足弓弧度。
3. 收緊右臀肌肉，出力外旋右腳，但沒有真正的動作產生。
4. 維持這姿勢約1分鐘，重複1至3組。
1. Raise your right leg and push it against a wall.
2. Standing on your left leg, keep your knee bend at 5° and keep raising the radian between the both legs.
3. Tighten the muscle of your left hip and turn your left leg without actually doing it.
4. Keep this position for around a minute and repeat the action.

內膝肌力過弱、失控或生理結構異常（如膝外翻和扁平足），都可能導致膝蓋骨錯位；使膝蓋不能順暢地在骨溝內移動，以致膝蓋底下的軟骨長期局部受壓，導致疼痛，甚至輕微慢性發炎，醫學界統稱為髌股關節綜合症。常見的徵狀包括膝蓋骨底隱隱作痛，特別是長期坐著、下山或下樓梯、膝關節大幅度屈曲及重複屈伸時，痛楚便會加劇。患處有時更會發出摩擦聲或有腳軟的現象。

髌股關節綜合症的預防措施及處理方法有很多，包括冰敷及電療，多做四頭肌及髌脛束的伸展運動，強化四頭肌、股內側肌、股大肌及中肌等。選用配合腳形的鞋墊可改善情況。另外，一些鬆整膝蓋的手法治療亦可改善膝蓋骨的錯位。假如痛症持續，便應改變活動模式，例如以草地上緩步跑、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。

如果情況仍未有改善，便要用特別的運動療法、手法治療、電療、黏膏帶紮貼法等等的物理治療，去改善膝蓋骨位置 and 糾正不正常的力學結構。✧

Some of the cases need to do more specific tests so as to define the exact parts and level of the injury. As different ligaments, joints, joint capsules and its surrounding tissues, bones and peritoneum, muscles, fascias, tendons, tendon sheaths, cartilages, meniscuses, fat pads, bursas, nerves, lymphatic systems and circulatory system tissues have their unique examination and cure methods. It may take a lifetime for Physiotherapists to gain a complete experiences and knowledge of them.

Readers often ask which injury is most common among runners and hikers and I would say it is Anterior knee pain (Patellofemoral pain syndrome). Many young athletes have pain under knee cap after squatting on the ground, climbing or descending stairs or prolonged sitting though they have no obvious injuries such as a ligamentous tear. Most of them think the pain is the result of exhausted trainings or unavoidable phenomenon, but it is in fact they may suffer from patellofemoral pain syndrome. Recent research shows that soft tissue tightness of outer side of knee, muscle weakness or poor control of inner side of knee, or certain lower limb malalignments such as knock knees and flat feet, are the consequences to patellar maltracking which means the knee cap cannot move smoothly

in the groove. This creates abnormal pressure on the cartilages underneath and will cause pain or even chronic inflammation. The most frequently reported symptom is dull aching pain at the front of the knee directly behind the knee cap which is exacerbated by prolonged sitting, descending hills or stairs, deep knee bends and repetitive flexion or extension exercises. There might also be crepitus or giving way.

Treatments for Patellofemoral pain syndrome vary from ice and electrical modalities to stretching exercises or mobilization techniques to increase the flexibility of tight structures. Orthotics is prescribed if there is excessive foot pronation. Training should be stopped and changed if the pain continues, activities that will help to ease the pain such as swimming, cycling and slow jogging on grass may be followed while activities that will increase the impact of the knee cap and aggravate the condition such as doing bunny hops, running and stair climbing should be avoid.

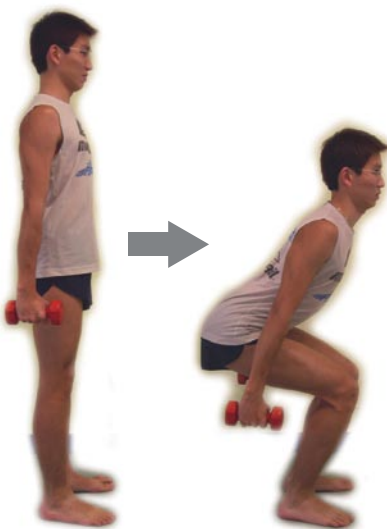
If the condition worsens, consult your doctor and sport physiotherapist. Specific exercise therapy, manipulations, electrophysical therapy, sports taping can be applied to correct patellar maltracking and pathobiomechanics. ✧

Strengthening Exercise 肌肉強化運動



臀中肌 Gluteus Medius

1. 側臥，雙膝屈成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 thigh slowing (separating your legs)
 3. Do not swing your hipbone and your feet.



股大肌和四頭肌

Gluteus Maximus & Quadriceps

1. 雙手執重物，雙腳分開成肩膀闊度。
 2. 腳趾指前，目正視，然後慢慢蹲下至90度，注意膝關節不能前過腳趾，然後返回原位。
1. Hold something heavy and separate your feet parallel to your shoulder.
 2. Hold your sight and your toes straight ahead and squat to 90°. Your knee should not go further to your toes and then return to original position.

我在理工大學正進行一項有關膝痛的
研究項目，集中分析如何通過特別的
運動刺激把膝蓋內外側力量失衡的情
況改善，從而減少膝蓋骨錯位。如果
你是40歲以下人士，一星期有跑十公
里或以上的習慣，膝部亦不曾有明顯
創傷，卻有前膝痛的情況，可電郵給
我 eltonn@gmail.com，查看是否需要詳
細檢查以診斷膝痛的由來。完成整個測
試後，我會給你相應的建議。

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