

HONG KONG PAIN SOCIETY ANNUAL SCIENTIFIC MEETING 2010

Tackling painful knee in sportsman – the Challenges!



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SPORTS INJURY in HK (1996-2005)



Sports Injury 21.5%



Traffic accident 17.7%



Home/Leisure 44%



Violence 6.9%

Details of sports involved

Ball games

| | |
|--|----|
| Basketball | 37 |
| Soccer | 28 |
| Volleyball | 12 |
| Badminton | 9 |
| Handball | 5 |
| Table tennis | 2 |
| Rugby | 2 |
| Softball | 1 |
| Track and field | |
| Sprinting | 15 |
| Middle and long distance running | 10 |
| Long jump | 8 |
| High jump | 5 |
| Other specialties | 18 |
| Water sports | |
| Swimming | 7 |
| Rowing | 1 |
| Martial judo | |
| Judo | 2 |
| Karate | 1 |
| Cycling | 28 |
| Ballet dancing | 10 |
| Gymnastics | 8 |
| Trampolining | 5 |
| Weight training | 2 |
| Roller skating | 3 |
| Others (horse riding, bowling, climbing, etc.) | 17 |

Sports Clinic Registry in PWH (2009)

- Knee (56%)
- Foot & Ankle (15%)
- Hip, Thigh & Calf (12%)
- Shoulder (10%)
- Hand/Wrist/ Elbow (5%)
- Back (4%)



Risk of sports injuries
運動創傷風險

**KNEE PAIN:
ACUTE INJURIES
Vs
OVERUSE INJURIES**



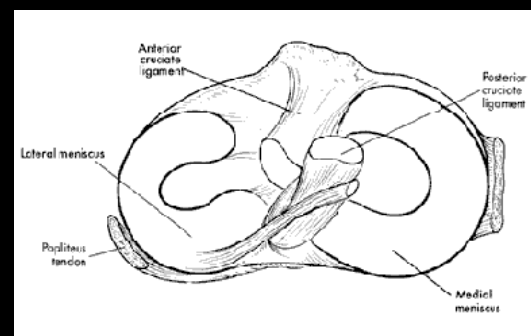
Acute Injuries



Torn Anterior Cruciate Ligament (ACL) - Warning Features

- Intensive pain
- Progressive increase swelling
- Significant Decreased ROM
- Feel a “Pop”
- “Dead” leg
- Cannot continue to play

MENISCUS INJURY



A Typical Presentation



Symptoms of Meniscal tear

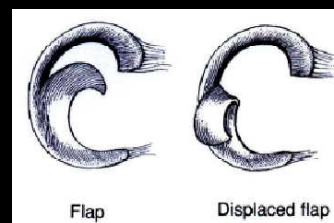
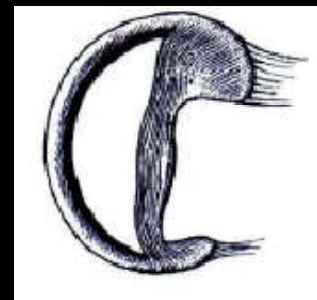
- **Symptoms**

- Pain
- Locking
- Knee swelling



- **Signs**

- Knee effusion
- Joint line tenderness
- Apley grinding test
- McMurray test



Meniscal injury

- Common, may associate with ligament injury
- **Conservative Vs Operative**
- Operative indications
 - Lock knee
 - Associate cruciate injury
 - Fail conservative treatment
- **Surgical treatment**
 - Meniscus repair
 - Partial menisectomy

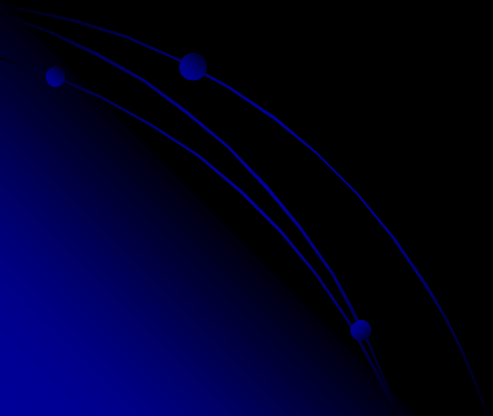


CARTILAGE INJURIES



- Acute Cartilage injuries commonly presented with:
 - Pain
 - Effusion
 - +- Locking
 - Decrease ROM

Acute Knee Injuries
presented with Pain –
Not Difficult to identify the cause
& manage if detected early



KNEE Overuse Injuries

IN SPORTS



Marathon 2007 Vs 2008



Best feet forward right to the very end

渣打馬拉松兩屆小統計

| 2006年 | 比較項目 | 2007年 |
|------------------|-------------------|---------------------------|
| 40,174 | 參賽人數 | 43,284 |
| 35,667 | 實際起跑人數 | 37,438 |
| 88.8% | 出席率 | 86.5% |
| 5,257 (14.7%) | 不適人數 (佔起跑人數比例) | 6,249 (16.7%) |
| 當中包括 | | |
| 22人，其中1死 1危殆 | 入院 | 35人，其中1人 危殆，29人已 出院 |
| 432人 | 受傷 | 455人 |
| 4,803人 | 抽筋 | 5,759人 |



不少運動員為免中暑，走到水站時紛紛拿起清水「照頭淋」，散散熱。
(郭慶輝攝)



資料來源：渣打馬拉松主辦單位、醫療輔助隊

渣打馬拉松各項統計

| 參賽人數 | 十公里 | 半馬拉松 | 馬拉松 | 總數 |
|-----------------|---------|--------------|--------------|---------|
| 開跑 | 27,094人 | 9,880人 | 5,603人 | 42,577人 |
| 完成賽事 | 26,997人 | 9,850人 | 4,785人 | 41,632人 |
| 完成賽事比率 | 99.64% | 99.70% | 85.40% | 97.78% |
| 接受醫療服務人次 | | 2008年 | 2007年 | |
| 抽筋/按摩 | 2,006人次 | 5,759人次 | | |
| 傷口包紮 | 256人次 | | | 455人次 |
| 水泡處理 | 26人次 | | | |
| 冰敷 | 21人次 | | | |
| 保暖 | 10人次 | | | 35人 |
| 送院 | 31人* | | | |

*至昨傍晚31人中24人已出院，7人留院

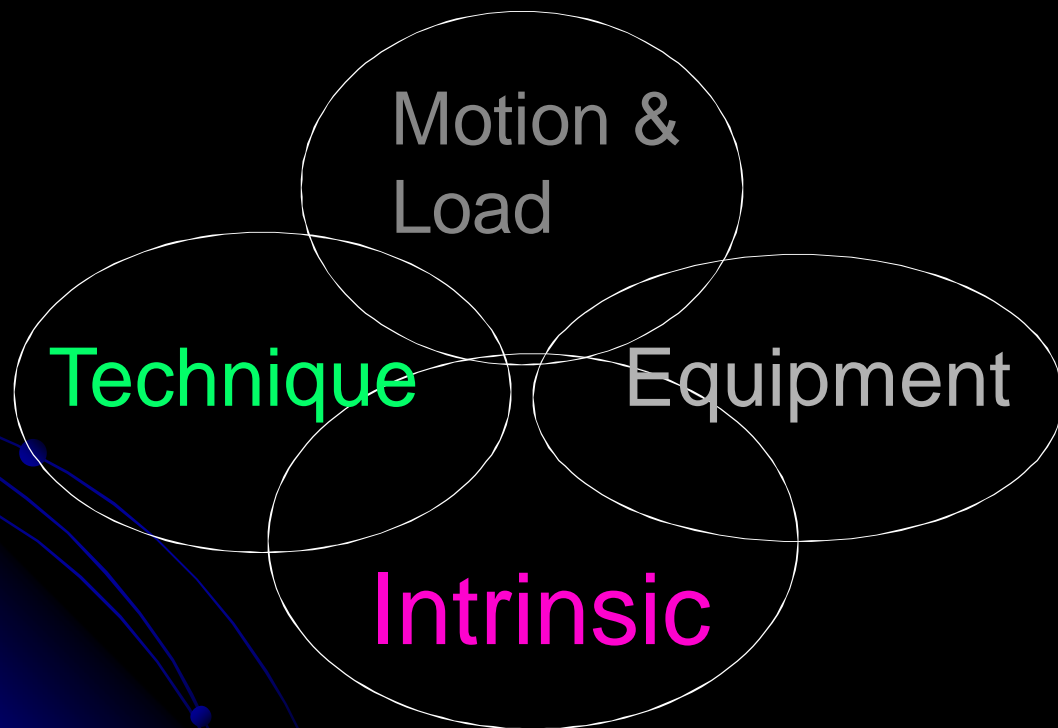


鯊魚套裝爭取成績。

Overuse Injuries

- Injury rate increases with the frequency, intensity, mode and duration of training.
- Many other factors contributing to getting hurt during training:
 - pre-existing anatomical abnormalities
 - medical problems
 - training program & technique
 - distribution of training and rest
 - how your body adapts to wear & tear.

Combination of factors



TISSUES PRONE TO OVERUSE INJURIES AROUND THE KNEE

- Bone
- Cartilage
- Ligament
- Muscles
- Tendons

After injury, what to do next?

- “RICE” or “PRICE”.
- Treat the symptoms.
- Heal the tissue
- PREVENTION OF RECURRENCE:
 - Identifying the cause of the injuries (like limbs malalignment, muscle weakness, soft tissue tightness, wrong pair of shoes....)
- Rehabilitation:
 - “Train through” injury (with a bit of slowing down the intensity) or having a complete rest?
 - Certain extent of “Cross training” (like swimming, cycling...) will probably a good compromise

Warning Features to alert when taking care Athletes with Knee pain:

- *Intensive pain*
- *Deteriorating symptoms*
- *Cannot train*
- *Risk factors identified*
- *Previous history*

Knee Pain in Sportsman

- Anterior Knee Pain
- Lateral Knee Pain
- Posterior Knee Pain

Anterior Knee Pain “Patellofemoral pain syndrome”

- **“Runner’s Knee”**
- **“Chondromalacia patella”**
- patella tracking is not on the right way

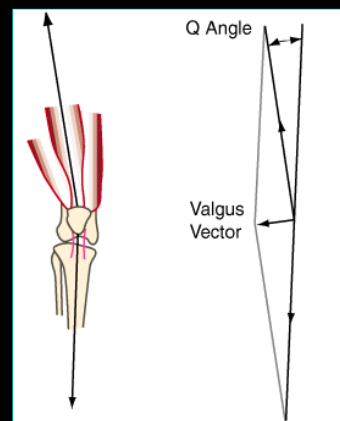


Symptoms:

- Pain in front of the knee.
- Onset usually gradual
- Particularly during running up/down hill or stairs.
- Crepitations
- Anatomical abnormalities

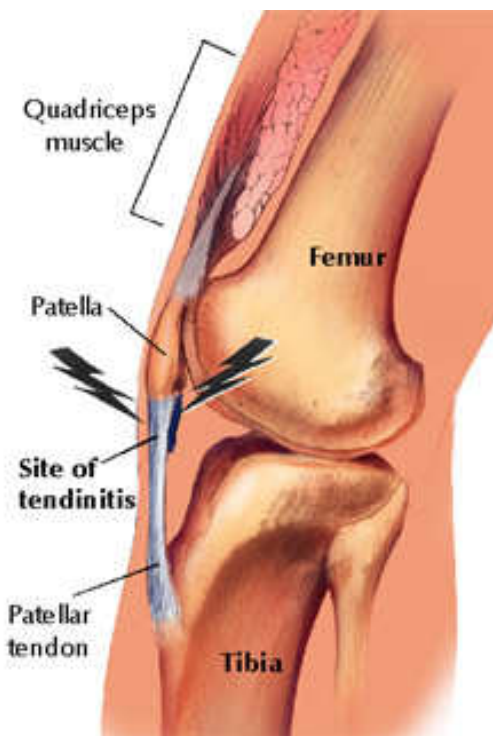
Causes - Usually a biomechanical problem

- **Patella malalignment** brought on by various anatomical abnormality, deficits in strength/ flexibility
 - Excessive femoral anteversion
 - Patella alta
 - Shallow trochlear groove
 - Weak vastus medialis muscle
 - Tight lateral retinaculum of the knee
 - Increasing Q angle or valgus knee
 - Tight hamstring and calf muscle
 - Over-pronated feet.
- **“Miserable Malalignment syndrome”** for runners:
 - Internally rotated hip
 - Knock-knee
 - Flat feet.



Treatment

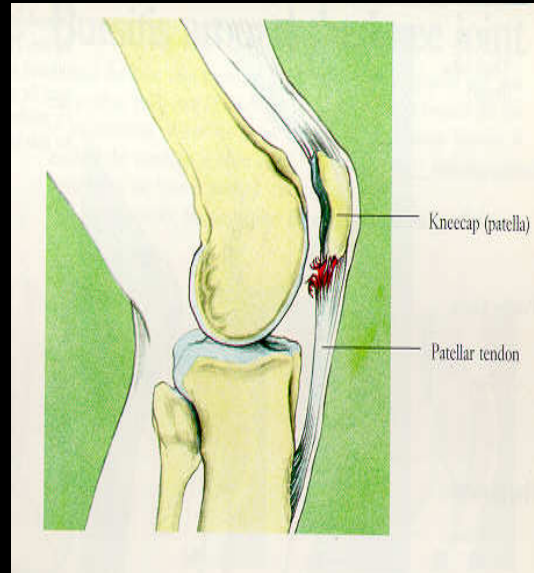
- Tackle the underlying cause of the patella mal-tracking:
 - orthotics
 - strengthening of weak muscle
 - stretching of tight structures
- Cross training methods (Brisk walking and swimming exercise)
- < 10% of cases: Operative treatment
 - Knee arthroscopy
 - Realignment surgery



Patellar Tendinosis

Patellar Tendinosis

- Jumper's Knee
- Anterior Knee Pain associated with tenderness at the inferior pole of patella



Tendinosis

Ultrasound and MRI are the two imaging modalities

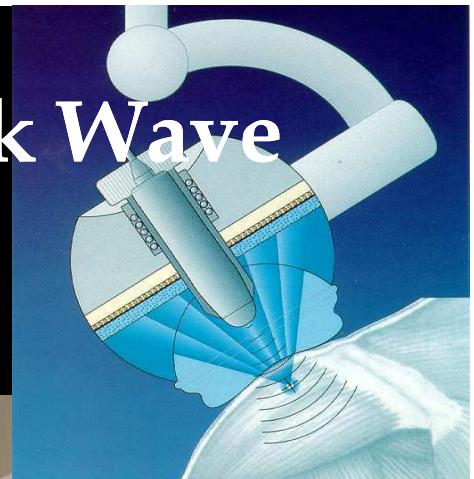
- Confirms diagnosis
- Excludes other conditions
- Severity
- ?? Prognosis
- Surgical intervention



Non-operative treatment

- Progressive closed chained quadriceps training.
- Eccentric Muscle Strengthening
- Avoid jumping sport on hard surface
- Stretching of tight muscle group
- Local physical therapy
- ?? Bracing/Strappings
- NSAID, ? Corticosteroids injection

Extracorporeal Shock Wave Therapy (ESWT)



?? Usefulness of NSAID

- More evidence in supporting its usage in Rheumatological disease, **BUT NOT FOR PATELLA TENDINOSIS.**
- Can suppress pain, but taken as a risk to remove the “fire alarm” of pain and place the athlete in great jeopardy with respect to tissue overload and failure.
- Regarded as a “too passive” and dependant modality and does not challenge the athlete’s responsibility of properly train, condition, and develop correct technique.

?? Usefulness of Corticosteroid

- Only strong support found in the treatment of **trigger finger**
- Beware of possible **complications:**
 - Tendon atrophy or rupture
 - Infection
 - Fat atrophy
 - Hyperglycaemia & adrenal axis compression (rare)

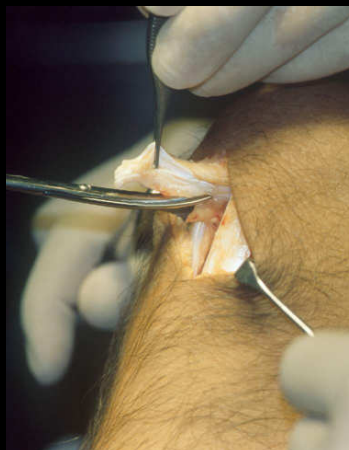
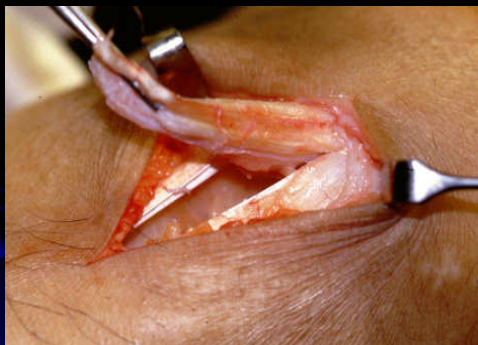
NO EVIDENCE TO GUIDE TREATMENT

NSAID & Corticosteroid

?? Inducing Tendinosis

Surgical Treatment

- Methods:
 - **Excision**, Drilling, Decompression



Results from Literatures

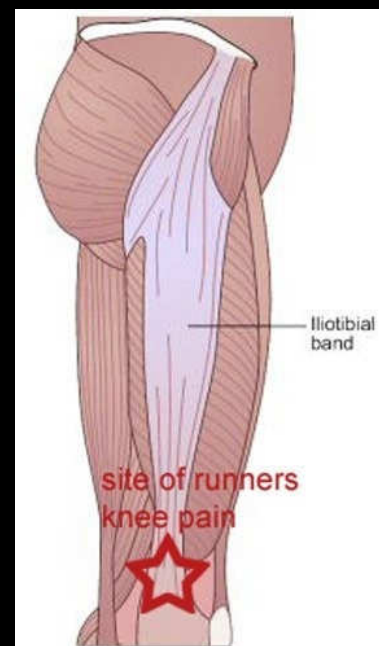
- Satisfactory results

- Raatikainen *Int J Sports Med* 1994
- Colosimo *Orthopaedic Reviews* 1990
- Coleman *Am J Sports Med* 1998

- However, **absence of Randomised studies**, no conclusive evidence can be drawn from the literature regarding the effectiveness of surgical treatment

Lateral knee Pain - Iliotibial Band (ITB) syndrome

- ITB rub against the lateral epicondyle of distal femur, causing inflammation of the underlying bursa, and thus resulted in Iliotibial band syndrome.

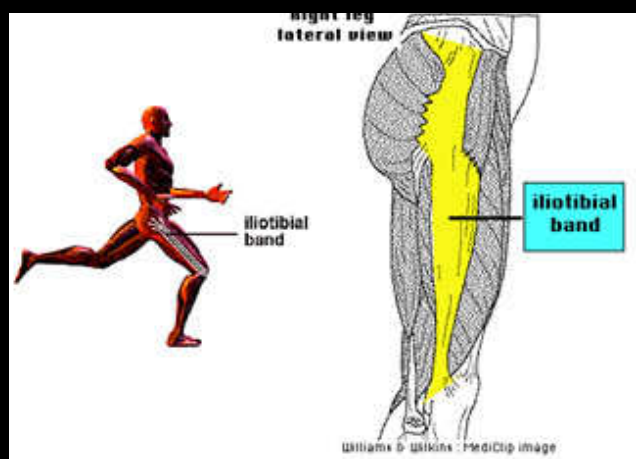


Iliotibial Band Syndrome

- The onset of symptom is gradual
- Tightness felt over the lateral aspect of the distal thigh and knee.
- Increasing pain on running, worse with running downhill or downstairs activities.
- The discomfort subsided with stop running.
- In worse condition, the pain will force the athlete to walk with the injured leg fully extended to relieve the friction of the ITB over the lateral epicondyle of the knee

Causes:

- 1. Repetitive flexion and extension**
of the knee like in marathon training
- 2. Running slanted or downhill surface**
- 3. Not warm up or cool down**
properly during training, causing tightness and decrease flexibility of the iliotibial band.
- 4. Anatomical abnormalities:**
 1. Weakness in hip abductors
 2. Bow legs



Treatment:

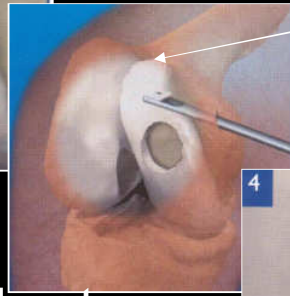
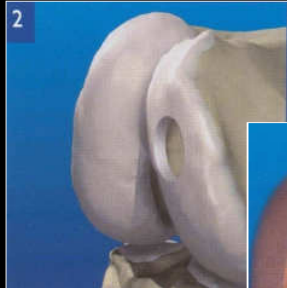
- **Reduce training intensities** and put ice on the painful sites.
- Taking **NSAID** will help to relief the acute symptoms.
- **Cautions should be taken in Cross training** as activities like cycling or rowing also cause irritations to the ITB over the lateral aspect of the knee.

Treatment

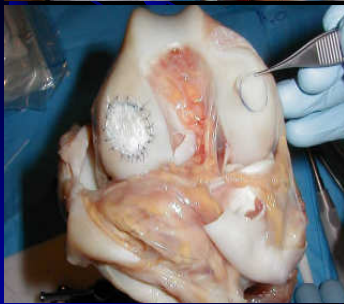
1. Evaluating on the shoes
2. Biomechanical evaluation of the running pattern
3. Physiotherapist :
 - Relief pain over the trigger point
 - Stretching the tight lateral structures
 - Specific strengthening exercise for the weak muscle
4. ?? Injection of Corticoid Steroid
5. Surgery is extremely rare in need.



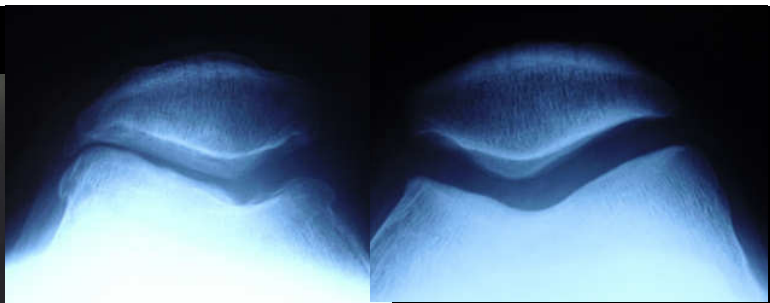
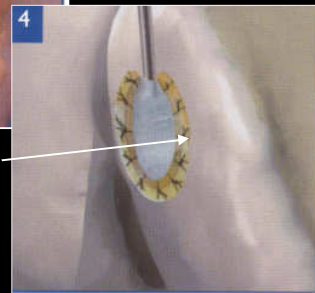
REGENERATION: Autologous Chondrocyte Implantation



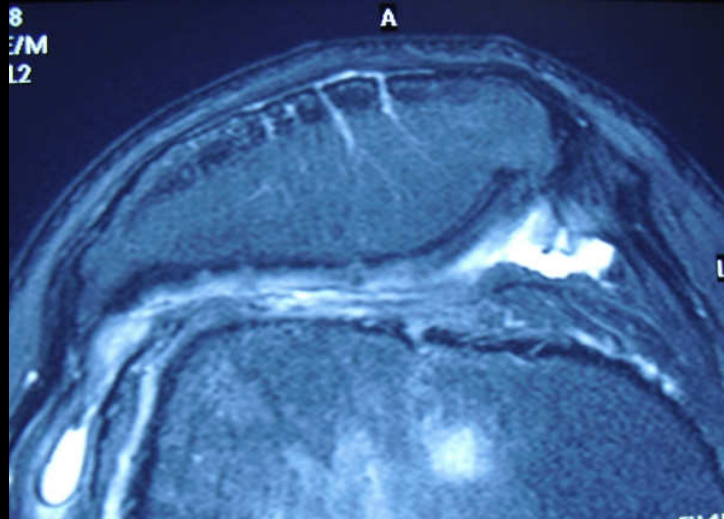
Cartilage biopsy and culture



Chondrocyte
implantation under
periosteum

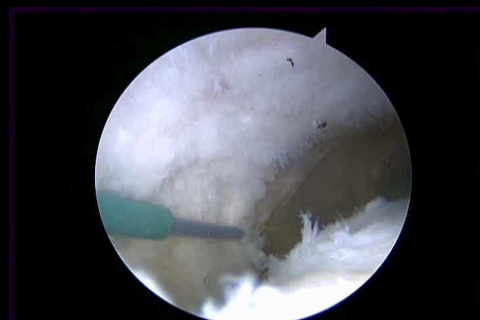
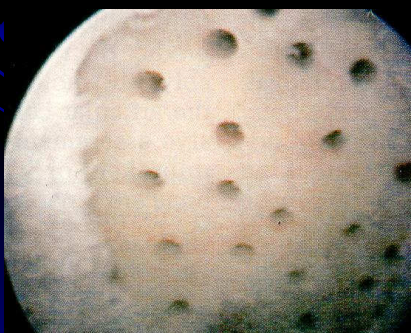
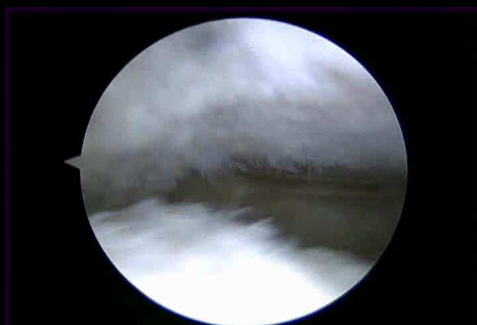


1. Flat feet
2. Valgus Knee both side
3. Weak Vasta Medialis
4. Bilateral Patella maltracking
5. Crepitations both PFJ
6. Pain over right knee PFJ



- Degenerative changes over PFJ
- Cartilage defect over lateral facet, femoral trochlear

Operation: Arthroscopic Chondral-plasty + Lateral Release



Team Work

**Team
Physician**

**Physical
Therapist**

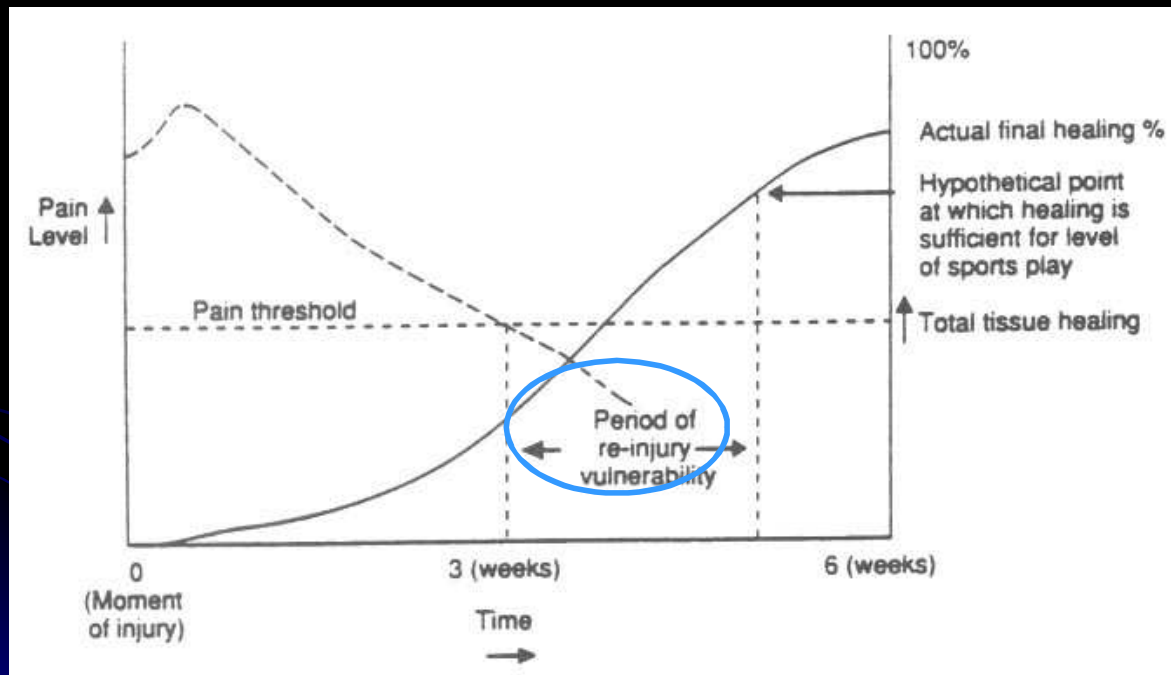
Athletes

**Athletic
Trainer**

Coach

***Why Overuse Injury
always recur?***

TOO SOON..... TOO EARLY



“DOC, WHEN CAN HE PLAY?”



EDUCATING THE ATHLETES & COACHES



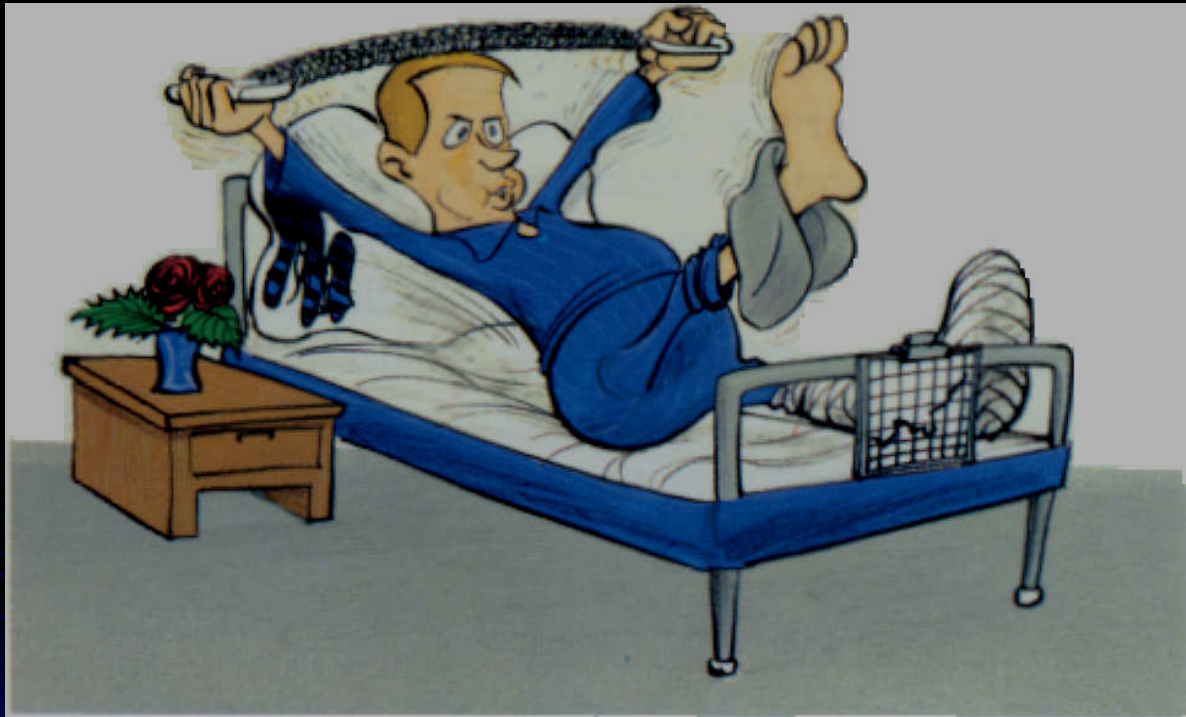
Athlete Dialogue

Criteria for return to sports

- **Absence of Pain & tenderness**
- **Muscle Function within 10 % of normal at both slow & fast speeds on Isokinetic testing**
- **Restoration of flexibility & endurance**
- **Intact proprioceptive sense**
- **Sports-specific functional evaluation**

Preventing Overuse Knee Injuries

- Recognise & Correct Poor **technique / posture**
- **Proper Training Program** under coaches guidance
- Check fit & appropriateness of **equipment**
- **Warm up & stretch** before & after sport
- **Gradually** increase intensity & duration of practice
- Avoid playing when very tired or in pain
- **Do Not Use Steroids**



REHABILITATION

-Start as early as possible

The Key to KNEE INJURY PREVENTION is **STRENGTH** and **FLEXIBILITY**



CONCLUSIONS:

- Pain around the knee is very common during training for an athlete, the correct attitude **is to face it and tackle it** with knowledge wisely once they've occurred.
- I always guide my patients to think of this in two distinct ways:
 - Healing the actual trauma so one can return to play without pain.
 - ***Determining the underlying causes of the injury so as to prevent recurrence.***



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Welcome to HKASMSS!

The Association held its inaugural general meeting on April 17, 1988 and received its Certificate of incorporation on October 4, 1988. The founder President is Prof. K M Chan.

The Association is the member of The International Federation of Sports Medicine (FIMS) and the Asian Federation of Sports Medicine.

The Association aims to promote and advance the practice, education and research of medicine and science in relation to sports & exercise.



News

December 12, 2008

Managing common orthopaedics injuries in running
[\[details \]](#)

December 11, 2008

Canadian Academy of Sport - Sports Medicine Conference
[\[details \]](#)

December 3, 2008

Mingpao - Abdomen pain during running
[\[details \]](#)

December 2, 2008

Mingpao - Running shoe for runners with pronated feet
[\[details \]](#)

November 28, 2008

WACBE World Congress on Bioengineering 2009
[\[details \]](#)

November 26, 2008

The 1st HKACEP Seminar on "Investment Knowledge"
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Hong Kong Association of Sports Medicine and Sports Science
Global

Basic Info
Type: Organizations - Academic Organizations
Description: This group is started and maintained by Hong Kong Association of Sports Medicine and Sports Science to share news to local colleagues, friends and students. If you are working in or interested in sports medicine and sports science, please join! Thanks!


If you like to further join as a member to HKASMSS, please go to our website (<http://www.hkasmss.org.hk>) and fill in the membership application form (<http://www.hkasmss.org.hk/membership.doc>). Thanks!

Contact Info
Email: dfong@ort.cuhk.edu.hk
Website: <http://www.hkasmss.org.hk>
Office: Mr Raymond So, Hon. Secretary, Hong Kong Association of Sports Medicine and Sports Science, c/o Hong Kong Sports Institute, 2 On Chun Street, Ma On Shan, Shatin
Location: Hong Kong, Hong Kong

Recent News
We have celebrated the 20th anniversary and organized the 2nd Student Conference on Sport Medicine, Rehabilitation and Exercise Science on November 1, 2008. Please check the details at <http://www.hkasmss.org.hk/2008conference>.

Post-conference report and photos are posted on the web. Please go and view, and feel free to save the full-size photos!

Congratulations to Miss Bee-Tian Teng, Miss Erica YY Lau, Dr Yajun Huang, Miss Polly Chung and Mr Mak-Ham Lam for winning the Best Paper Awards!



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