



Hong Kong Association of Sports
Medicine and Sports Science
(HKASMSS)

香港運動醫學及科學學會

HKASMSS



- 成立於 1988, 至今已20年
- 為國際運動醫學協會,亞洲運動醫學協會,中國香港體育協會暨奧林匹克委員會及香港醫學組織聯會會員
- 致力推動香港運動醫學及科學之研究、教育及發展



















































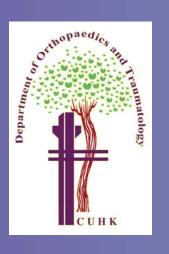






ELITE TRAINING SEMINAR

Overuse Injuries & Stress Fractures in Athletes



容樹恒醫生 Dr. YUNG, Shu-Hang Patrick 香港運動醫學及科學學會會長 香港骨科醫學會 - 運動醫學分會會長 香港體育學院運動醫學名譽顧問醫生 香港賽馬會運動醫學及健康科學中心執行總監 國際運動醫學聯會聯繫統籌委員會主席







Risk of sports injuries 運動創傷風險

SPORTS INJURY in HK (1996-2005)



Details of sports involved

Ball games	
Basketball	37
Soccer	28
Volleyball	12
Badminton	9
Handball	5 2 2 1
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	 7
Swimming	7
Rowing	1
Martial judo	2
Judo	2 1
Karate	28
Cycling	10
Ballet dancing	- -
Gymnastics	5
Trampolining	2
Weight training	8 5 2 3
Roller skating Others (horse riding, bowling, climbing, etc.)	17
Others (norse riding, downing, chimbing, etc.)	. .

Overuse Injuries 過勞損傷

How common?

- Cyclists : Tour de France 2290 miles
- Sports Runners : 30-50 km / wk
- Long distance runners : 50-100 km/wk
- Elite marathoner : 200-250km per week
- Swimmers & gymnasts : several hours a day (often young adolescents)

Repeated movement and stress.....

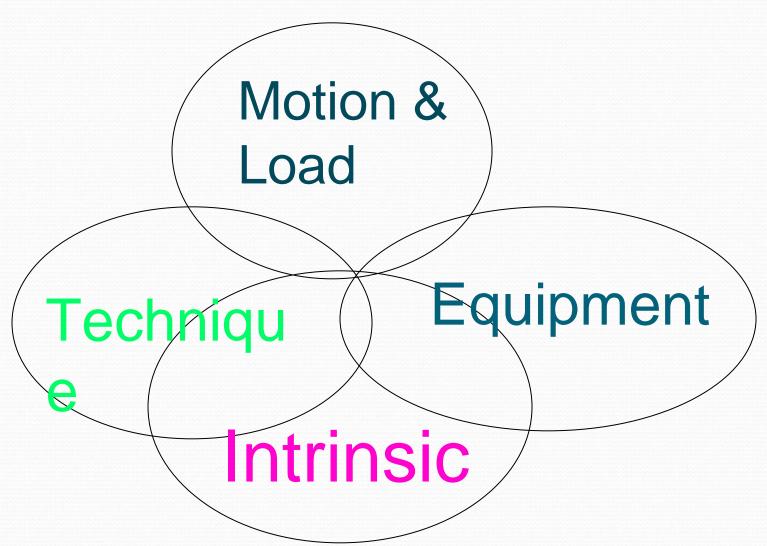




Overuse Injuries

- 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

- Bone
- Cartilage
- Ligament
- Muscles
- Tendons
- Fascial compartments
- Nerve entrapment

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 of Overuse Injuries in Athletes:

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

Preparing for Marathon

- How many foot steps you take to finish a Marathon Race?
- 30000 to 50000 steps
- For an athlete training for 6 months (60km per week) in the preparation of a marathon game......
- Over 1 million steps per foot!!!
- Every time the foot hits the ground, a stress three to four times the body weight is absorbed via the ankles, knees, hips and then the back.

RATHON 2007 VS.

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%

不適人數 6,249 (佔起跑人數比例) (16.7%)

當中包括 入院

抽筋

1危殆		危殆,29人已 出院
432人	受傷	455人

5,759人

35人,其中1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

5,257

(14.7%)

4,803人

22人,其中1死

Standard Chartered HONG KONG MARATHON208 連打馬拉松



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%
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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 水泡處理 冰敷 保暖		256人次		
		26人次	4.0	-r 1 \h
		21人次	45	55人次
		10人次	1 195	
送院		31人*		35人
	*至昨傍	晚31人中24.	人已出院	7人留院



Best feet forward right to the very end

2009 HK Marathon



PAIN around the "FOOT & HEEL"

Basketball Player

- M/17, Form 6 student
- Semi-Professional Basketball player, representing HK
 Junior
- c/o of insidious onset of heel pain upon running since 1 month ago, relieve with resting
- Increased training intensities over the past 3 months
- Also change of training program over the past 3 months

Basketball Player

- Treated as calcaneal bursitis by GP with NSAID
- Then gradually developing pain even on walking or standing
- Pain persisted
- X-Ray taken at 5 weeks after symptom onset: NAD
- Local tenderness at the posterior, lateral and medial aspect of Os calcis

Recreational Long Distance Runner

- Slightly increase in warmth around the heel
- MRI:



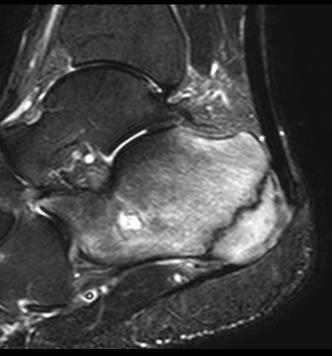
姚明左腳骨折告別本賽季

http://news.sina.com 2008年02月27日 04:03 <mark>僑報</mark>









Elite Long Distance Runner

- F/26
- Long Distance Runner, Marathon Runner, training for ~20 km/day
- c/o of insidious onset of mid-foot pain upon running,
 relieve with resting
- Tenderness over 2nd & 3rd Metatarsal

X-Ray:



Stress Fractures of Metatarsal Bones









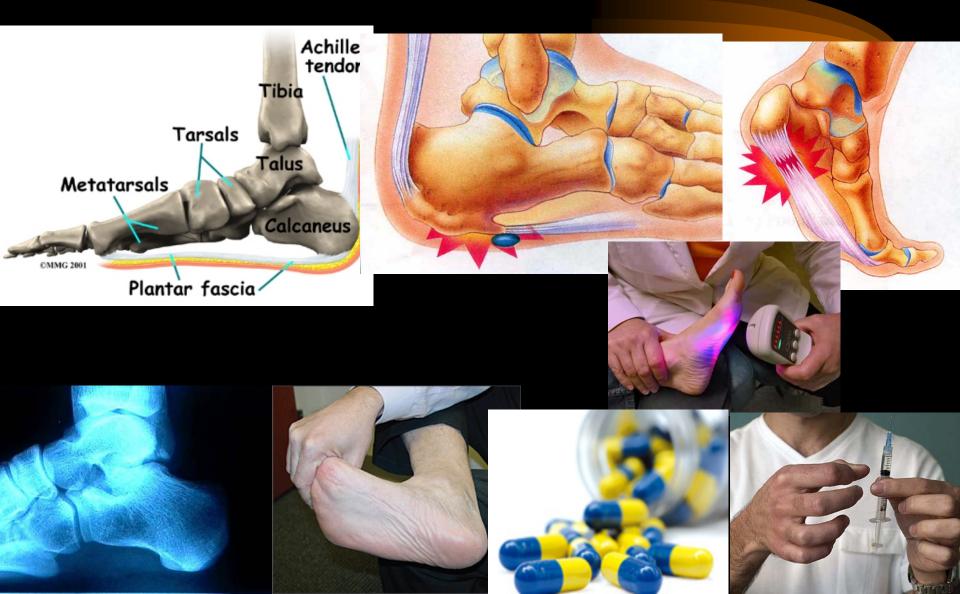






Of course not every
"HEEL" pain in Athletes are
Stress Fracture,
this is just minority

Plantar Fascitis









Achilles Tendinitie/Tend









PAIN around the "LEG"

Hong Kong Team Triathlon Athlete

- M25
- Triathlon athlete, 10K runners
- Insidious onset of Right leg pain upon running, seen by GP with X-Ray taken: NAD
- Coped for 1 months with physiotherapy and treated as "ShinSplints", keep on to train with pain
- Starting to have pain even on walking

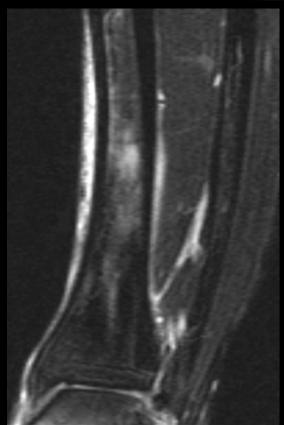
Hong Kong Team Triathlon Athlete

- Seen by me around 2 months after the onset of pain.
- Mild local tenderness over the tibia at anterior medial aspect of the leg
- X-Rays: slightly increased periosteal reaction



Hong Kong Team Triathlon Athlete

Stress MRI: Increase marrow signal



Not Every Leg pain is because of Stress Fracture

Medial tibial pain syndrome (Tibial periostitis)

- Now properly used to replace the old term of "ShinSplints".
- Pain over the medial side of the distal tibia, resulted from inflammation of the tissue overlying the medial aspect of distal tibia, with inflammation of the periosteum, thus called "Tibial Periostitis".
- Diagnosis: With Care to rule out compartment syndrome and stress fracture of tibia.
- Commonly caused by overtraining, with predisposing factors very similar to that of stress fracture, like tight calf muscle, over pronated feet, training on hard surface and worn out shoes.

HK Team Triathlon Athlete

- M/18
- Complained of pain over the anterior lateral aspect of right leg during running for about 20 minutes, relief with resting.
- P/E: NAD (no tenderness, no nerve palsy)
- Symptoms persist despite treatment with physiotherapy, noted "tense" feeling of the leg with short moments of numbness of foot upon pain of affected leg.
- X-Ray: NAD

HK Team Triathlon Athlete

• Compartment pressure monitoring after running for 20 minutes: 60mmHg

CHRONIC COMPARTMENT SYNDROME

Symptoms:

- Onset of symptom is usually gradual, but increased with an ache, sharp pain, or pressure in the anterior-lateral aspect of the lower leg
- Symptoms completely abate when the activity is stopped.
- When the conditions deteriorated, there may be weakness when trying to dorsiflex the foot and toes upward, and pain when the foot and toes are flexed passively.
- Numbness over the dorsum of the foot and in-between big and second toe are common complains in later stage.
- The athlete will become impossible to exercise once the symptoms happened.
- Confirm by measurement after work provocation (>40mmHg)

Treatment:

- One should cease running once the diagnosis is confirmed.
- It is important to identify any predisposing factor
 - modifying training regimen
 - Paying attention to training surface, footwear and running technique.
- However, most of the cases will recur once the athlete resume running.
- So once the diagnosis is confirmed and conservative treatment failed, the doctor will advice on surgery (Fasciotomy) if the athlete wishes to continue in running sports.

PAIN around the "HIP"

University Long Distance Runner

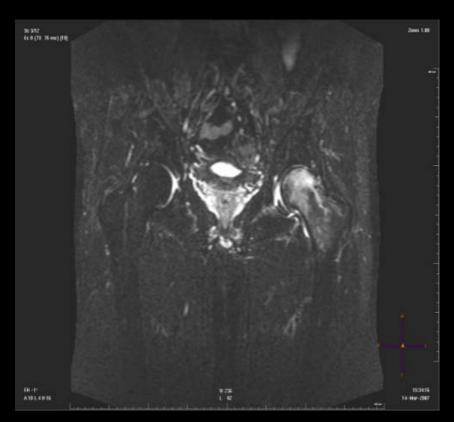
- F/20
- Representing University for long distance running & Cross-Country Running
- Preparation for the HK Marathon in 2008
- Running for ~ 100km/week for about 2 months
- c/o of increasing pain over the left hip

University Long Distance Runner

- Seen by GP for anther month, with X-Ray normal, treated as "Sprained Hip"
- Pain persisted despite treatment with Physiotherapy for another 1 month
- Clinically Aching pain with "C-Sign" pointing to left hip

University Long Distance Runner

• MRI: Stress Fracture of Left Hip Head-Neck Junction



Stress Fractures in the Hip

- The consequence of a delay in diagnosis Eriksson 1990 AJSM
- 23 patients : doctors' delay averaged 13 weeks (3 developed AVN)
- 15% displaced to complete fractures
- Groin pain provoked by movement of hip joint
- Negative X-ray DOES NOT rule out #
- MRI sensitive in making the diagnosis
- Bone scan often positive within 3-4 days

Stress Fracture of the Hip is "RARE"

Femoroacetabular Impingement : cam-type

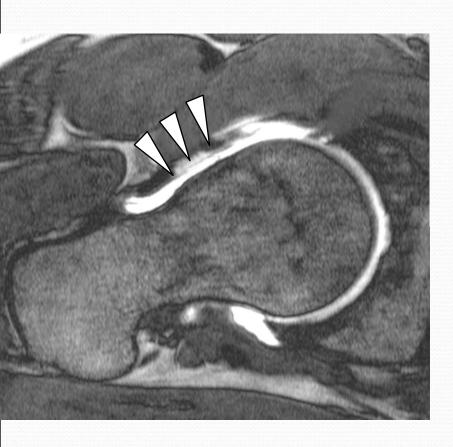


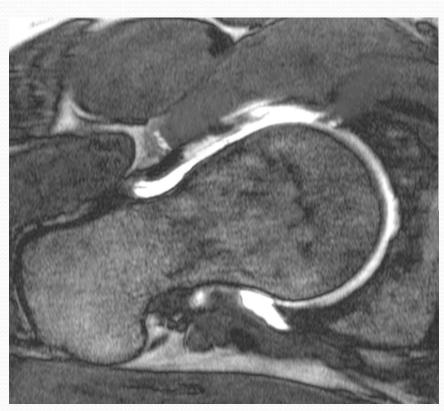
normal for comparison



head-neck junction 'pistol-grip deformity'

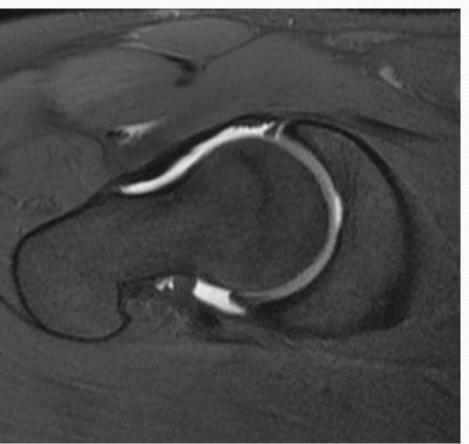
FAI: cam-type





X-Ray & MRI





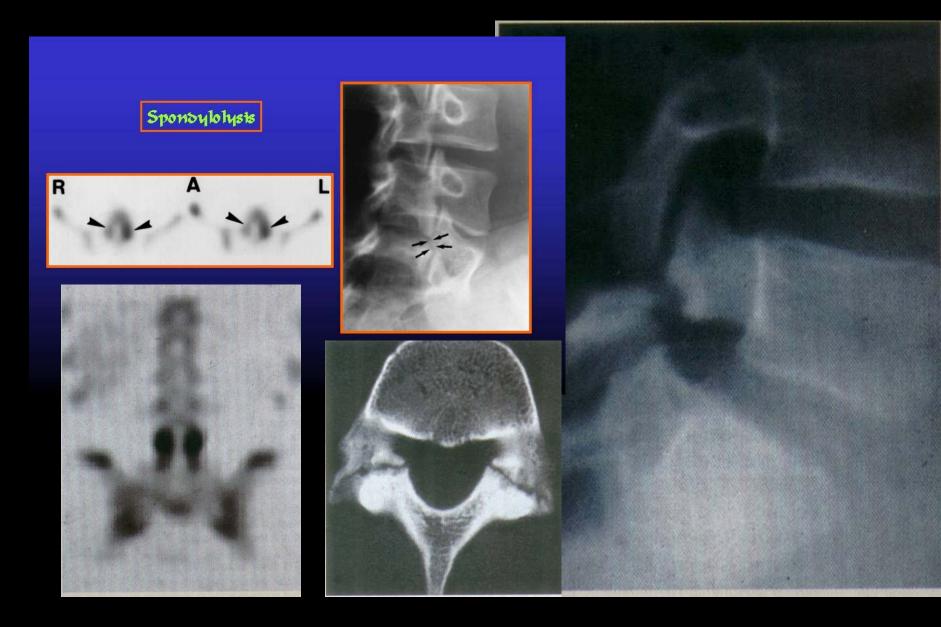
Problems can happen at the "BACK"!!!

HK ROWING TEAM

- M/17
- Back pain for 6 months, on and off
- No specific injury
- Pain during sports especially on hyperextension of back

- local tender lumbar spine at L4/5/S1 level
- spinal excursion OK but pain on hyperextension of lower back
- SLR full
- no neurological deficit

SPONDYLOLYSIS



Epidemiology (Athlete)

- Overall prevalence 8.02%
- 27% in throwing sports (discus, javelin, shot put)
- 33% in gymnasts
- increased prevalence in rowing, weightlifting & diving sports (10-20%)

Etiology (acquired)

Biomechanical

- intense shear stress at the pars esp in extension posture
- fatigue fracture at pars in vitro (*Ichikawa : Br J Sports Med : 16(3) : 1982*)
- repetitive flexion & extension load (Letts: J Ped Orth: 1986)
- lateral flexion with rotation also important

Clinical feature

- usually no history of specific injury
- symptomatic in 46% (Soler: Am J Sports Med: 28: 2000)
- back pain worsen on exercise & hyperextension
- tenderness & hamstring tightness

STRESS FRACTURE

Though Not Very Common,
 But EARLY Detection
 is Very Important

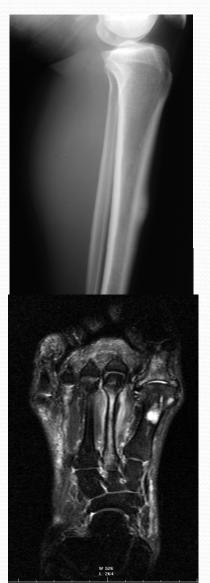
Unfortunately.... Most of the time Stress Fracture is being missed.....



在千呼萬喚下電踏球

Stress fracture of the Lower Limb

- 95% of stress fracture occur in lower limbs, and most often seen in the legs or feet.
- Tibia 50%, Tarsals 25%, Metatarsals 8.8%
- 19% over the upper mid-tibia, 4% over the mid-tibia, and 11% over the distal tibia.



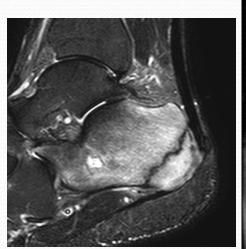
Where do stress fractures occur?

- Tibia 50%
- Tarsals 25%
- Metatarsals 8.8%
- Femur/ fibula/ pelvis/ sesamoids/ spine
- Bilateral in 16.6% of cases

Stress fractures in athletes: a study of 320 cases Matheson GO. Etal AJSM 1987Jan-Feb;15(1):46-58









What activities make athletes most susceptible to stress fractures?







In all of these sports, the repetitive stress of the foot striking the ground can cause trauma.

Without sufficient rest between workouts or competitions, an athlete risks

developing stress fracture

Literature review of 3198 stress fractures

Weight training, tennis, wheelchair sports, pitching, gymnastics

upper limb
1% trunk
17%

Weight training, football, gymnastics, wrestling, diving, running (pelvis)

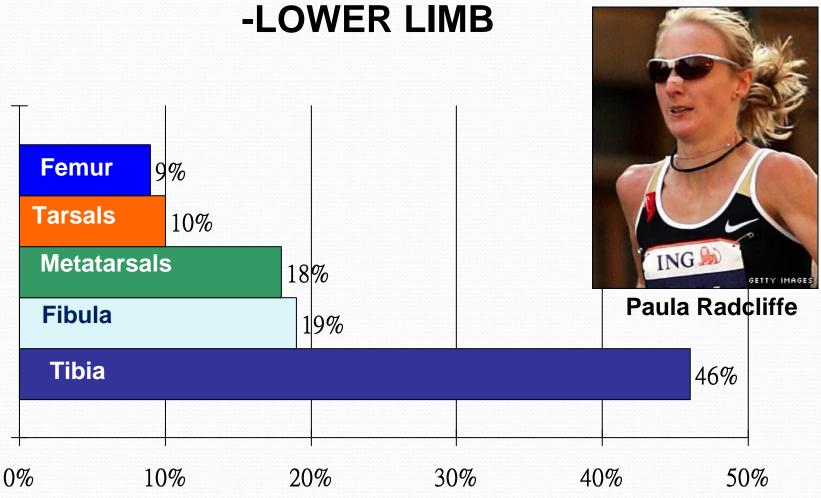
Jogging, running, ballet, basketball, soccer, aerobic dance

lower limb 82%

Location of common stress fractures according to sport

SPORT	LOCATION
Runners	Tibia (distal), fibula, metatarsals
Basketball	Tarsal navicular, tibia (midshaft)
Football	Metatarsals, first metatarsophalangeal
	sesamoids
Dancers	Metatarsal (base), tibia (midshaft)
Military recruits	Metatarsal (distal shaft), calcaneus,
	tibia (proximal)

INCIDENCE OF STRESS FRACTURES



Causes:

Classical overtraining

- Sudden increase in frequency, duration, and intensities of training.
- Running on hard surface
- worn out shoes
- poor nutrition
- biomechanical disadvantages (flat feet)
- poor running technique.



Symptoms:

Usually the athlete complained of pain over the affected bone during activity, initially subtle and gradually

- => Become sharp and intense, which is quite localized.
- => With time, associated swelling may become obvious, and the pain is so severe that one must stop running immediately.

Investigations:

- Early X-Rays of the bone usually do not reveal the stress fractures until 4-8 weeks after the symptoms occur.
- Bone scan fate out in usage
- MRI, very useful and reliable to detect stress fracture in the very early stages.



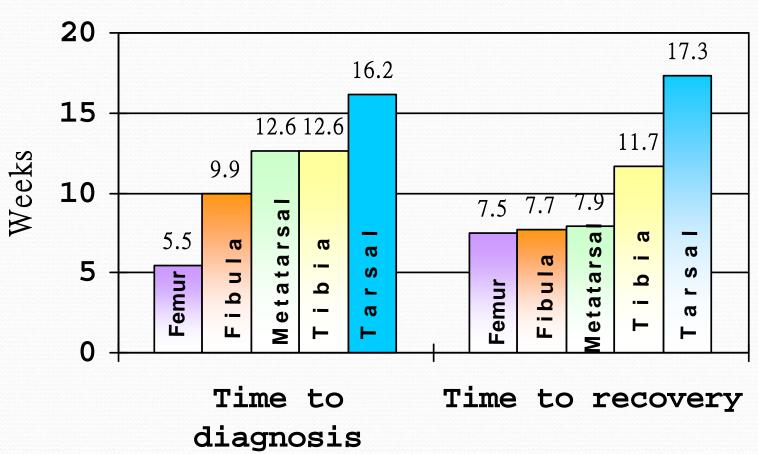


Treatment:

- Stop from running once stress fracture is diagnosed.
- Analgesic (remind the athlete of the mask effect of the analgesics)
- Protective weight bearing walking in the acute phrase to relief the stress, like wearing a cushioned boot (Aircast).

- non-weight bearing cross training like swimming to maintain his/her cardiovascular fitness.
- With time, usually takes about 6 -8 weeks, the pain will subsided and the athlete can gradually start weight-bearing exercise training, firstly on soft ground until pain free without swelling, then one can resume normal training.
- Identify if any preexisting anatomical abnormality leading to the problem, and tackle it before resume running.

Average time to diagnosis and healing of specific stress fracture sites



Prevention & Early detection

- Proper conditioning and pre-season training
- Proper shoe wears
- Balanced diet
- If pain or swelling occurs, immediately stop the activity and rest for a few days. If continued pain persists, reconsult a doctor
- High index of suspicious!!!

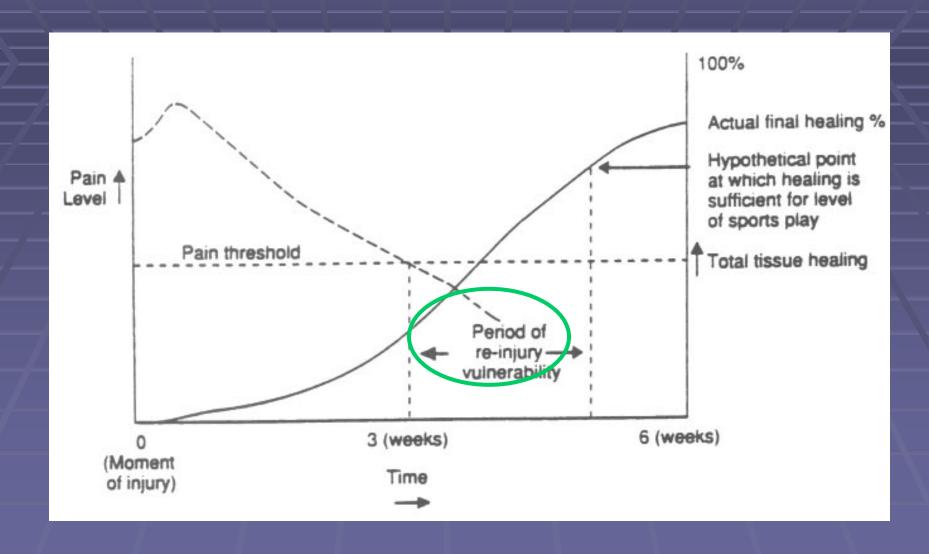
"DOC, WHEN CAN HE PLAY?"

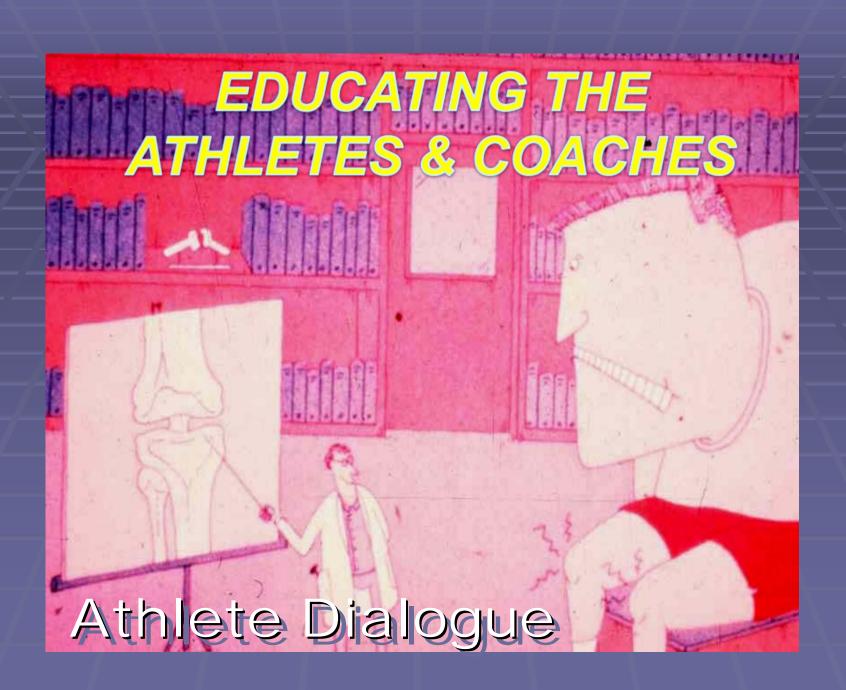


Criteria for return to sports

- 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

TOO SOON.... TOO EARLY



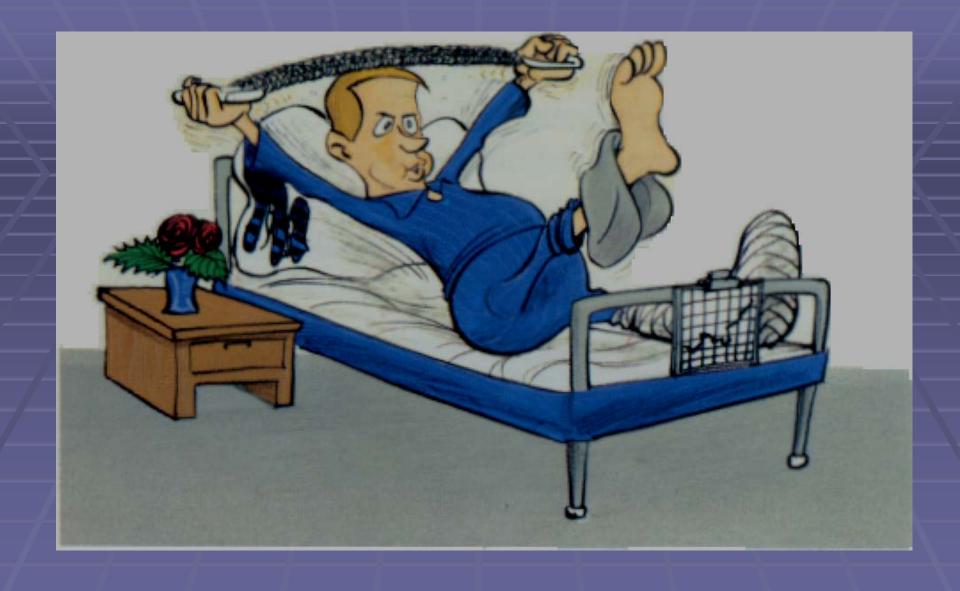


Sports specific parameters

Sports	Flex.	Strength	Speed	Anaerobic	Aerobic
Soccer	3	2	3	4	4
Tennis	4	2	4	4	3
Golf	3	4	3	2	1
Dist. Run	3	2	2	2	4

Preventing Overuse 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 INJURY PREVENTION is STRENGTH and FLEXIILITY







CONCLUSIONS:

- 2000 WINELD W
- Overuse injuries are not uncommon 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 run without pain.
 - Determining the underlying causes of the injury so as to prevent recurrence.



Your Body Will Let You Know How Much To Do.

Team Work



Team Physician

Physical Therapist

Athletes

Athletic Trainer

Coach



PLAY SMART & PLAY SAFE

www.hkasmss.org.hk



Welcome All of You to join the Sports Fraternity

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Hong Kong Association of Sports Medicine and Sports Science 香港運動醫學及科學學會



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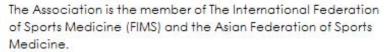






Welcome to HKASMSS!

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 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

Minapao - 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"

http://www.hkasmss.org.hk/

[News Archive]



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4 Hong Kong Association of Sports Medicine and Sports Science

Global

Basic Info

Type: Organizations - Academic Organizations

This group is started and maintained by Hong Kong Association of Sports Medicine Description: 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

dfong@ort.cuhk.edu.hk Email: 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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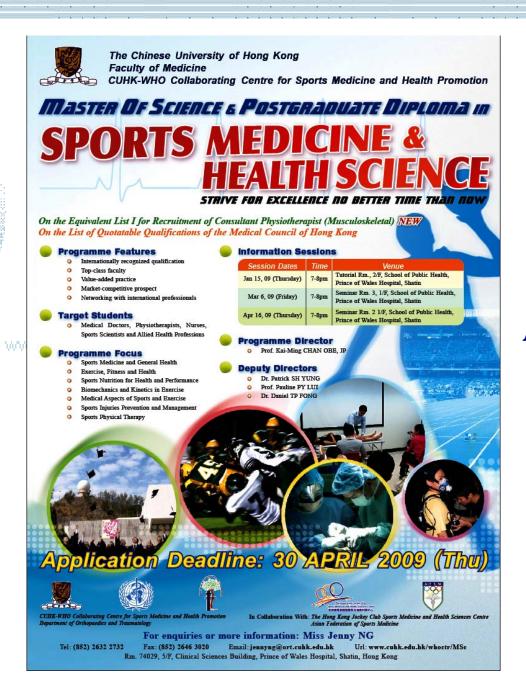
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