



Sports Injury & its Prevention in Youth Sports

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- President, Hong Kong College of Orthopaedic Surgeon
- President, Asian Federation of Sports Medicine



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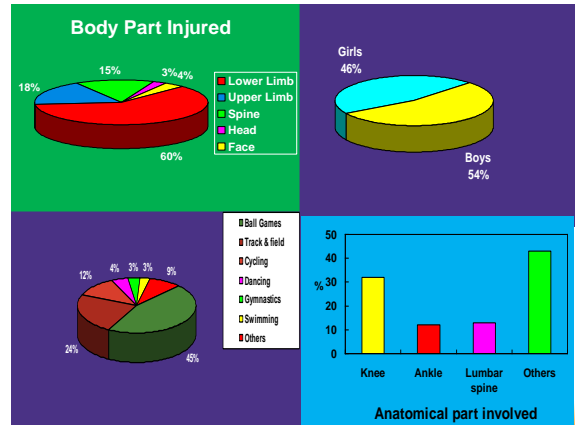
“Youth Sports Injuries in Hong Kong : a 7 year survey”

- N. Maffulli, Bundoc, K.M. Chan, J.C.Y. Cheng
Br. J Sports Med Sept, 1996, Vol 30(3), 218-221

- 2293 sports injuries in 5 years
 - 238 were youngsters
 - average age is 13.8 y.o. (range 10 - 16 y.o.)
- 85 % non-serious injuries
 - sprains, contusions, abrasions, overuse injuries
- 15 % severe injuries
 - fractures, dislocations, concussions or torn knee ligaments

In Hong Kong ... (1996)

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In Hong Kong ... (2008)

In O&T Dept, Prince of Wales Hospital

Most sustained in Soccer (40%) & Basketball (35%)



Soccer
40%

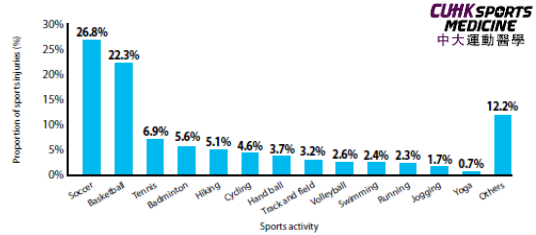


Basketball
35%

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Injury Survey -Sports Injuries

Figure 9: Sports injuries in Hong Kong by sports activity, 2008

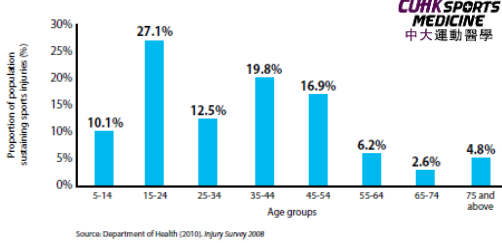


Source: Department of Health (2010). Injury survey 2008

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Injury Survey – Sports Injuries

Figure 8: Sports Injuries in Hong Kong by age group, 2008



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中大運動醫學

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Sport injury survey for Track & Field youth athletes in Hong Kong (2016)

- Study Group: Track & Field Teams in 10 high schools
- Participants: 78 patients (average age 16)
- Duration: 1 year prospective follow up
- 45% of them suffered from injury leading to rest > 2 week
- Common injuries type:
 - **Overuse injuries (47.3%)**
 - Myofascial pain/muscle spasm (32.5%)
 - Ligament sprain (18.7%).
- Site of injury:
 - Foot & Ankle (31%), Knee (24.1%), Thigh & Calf (13.5%)

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Sport injury survey for Team Sports youth athletes in Hong Kong



A survey of 16 secondary schools in 2016



779 team school athletes were interviewed



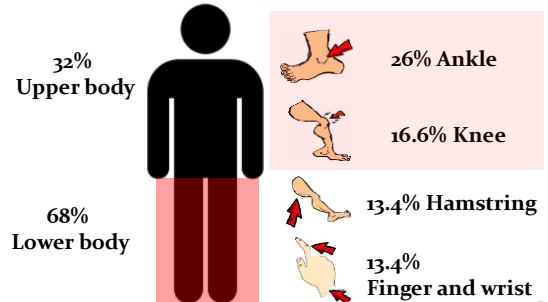
~ 70% injury at least once per year



~50% Minor injury (Rest for 0-3 days)
5% Severe injury (Rest > 28days)

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The four most common injury sites



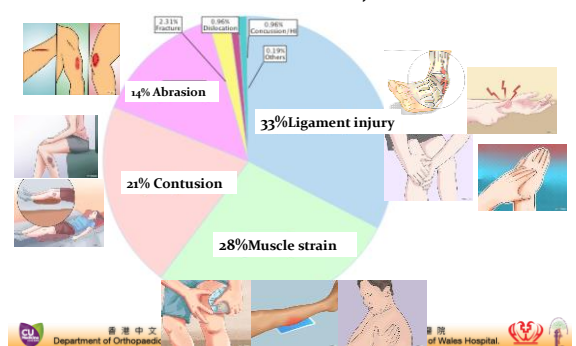
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Rank of injury types in different team sports

Rank	Basketball	Soccer	Volleyball	Handball
1	Ankle ligamentous sprain	Ankle ligamentous sprain	Ankle ligamentous sprain	Ankle ligamentous sprain
2	Finger or wrist ligamentous sprain	Quadriceps or hamstring strain	Quadriceps or hamstring strain	Finger or wrist ligamentous sprain
3	Quadriceps or hamstring strain	Calf muscle strain	Knee contusion	Quadriceps or hamstring strain
4	Knee ligamentous sprain	Calf muscle contusion	Knee abrasion	Toe contusion

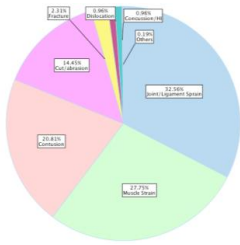
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Four most common injuries



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Hospital Admission



- Anterior Cruciate Ligament Injuries 36%
- Fracture 34%
- Ankle Ligament Sprain Injuries 22%
- Dislocation 6%
- Concussion 2%

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ACL injury prevention program



The 11+

Football for health

Complete Warm-Up

The 11+ is a complete warm-up package for football players. The programme was developed by an international group of experts. It is a scientific study to keep athletes safe and prevent injuries.

Categories: STRENGTH, FLEXIBILITY, BALANCE, COORDINATION

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第二部份：力部、彈動訓練、平衡、10分鐘

行跳	作跳	高跳
1. 行跳 2. 作跳 3. 高跳	4. 行跳 5. 作跳 6. 高跳	7. 行跳 8. 作跳 9. 高跳
10. 行跳 11. 作跳 12. 高跳	13. 行跳 14. 作跳 15. 高跳	16. 行跳 17. 作跳 18. 高跳

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Injury prevention – Biomechanics approaches

Kinematics and Posture



The Landing Error Scoring System (LESS) Is a Valid and Reliable Clinical Assessment Tool of Jump-Landing Biomechanics The JUMP-ACL Study

Darin A. Padua, PhD, ATC,††, Stephen W. Marshall, PhD††, Michelle C. Boling, PhD, ATC†, Charles A. Thigpen, PhD, ATC†, William E. Garrett, Jr, MD, PhD† and Anthony L. Bratler, MEd

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SMART 2009 Convention

SMART CONVENTION 2009

Sep 19, 2009, Hong Kong

F-MARC and Oslo Sports Trauma Research Center

FIFA MEDICAL CENTRE OF EXCELLENCE

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Overuse injuries in Children



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Overuse injuries in Children

- Too Soon
- Too Concentrate in one Sports
- Too Intense
- Too Frequent
- Too Competitive

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Majority of overuse injuries taking place in Lower Limbs

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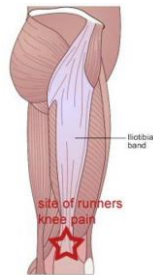
Case Illustration

- 16 year old boy, preparing for Cross Country
- Training for about ~60km (3x20km) every week (up and down hills)
- Started to have lateral side knee pain
- Worse with stairs, No other injuries
- Tenderness at the lateral epicondyle
- Tight ilial tibial band (ITB) with Ober's Test +ve

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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.

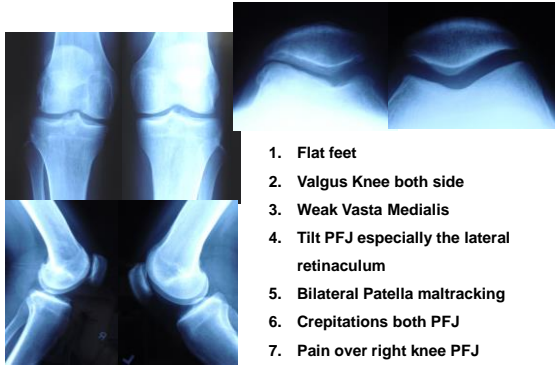


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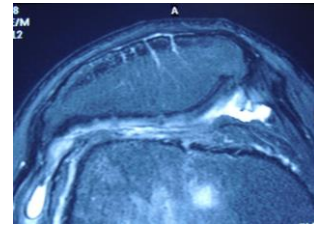
Case Illustration

- F/18
- Long distance Runner, preparation for ½ Marathon since 3 months ago
- Training 10k/day, 4 times a week
- Started to have right anterior knee pain for 1 month
- Worse on stairs
- Flat Feet, Mild valgus knee
- P/E: PFJ maltracking (lateral trend), tender lateral facet of patella

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

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“Patellofemoral pain syndrome”

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



Case Illustration

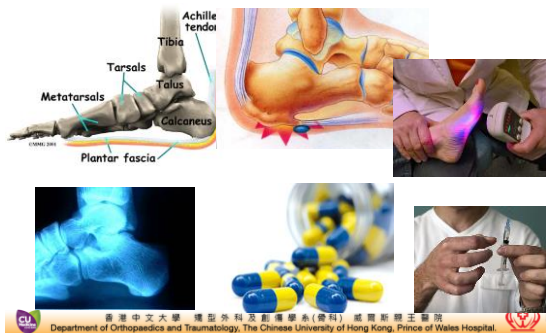
- 17 years old boy
- Preparation for Long Distance Running
- Training for about ~80km every week (long & short run with interval training)
- Started to have pain below the heel
- Worse with the first step in the morning
- No other injuries



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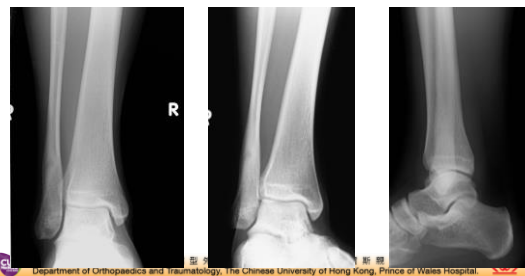
Plantar Fasciitis



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Case Illustration

High jump player, 16/F
Right distal fibula pain x 1 month
No trauma history



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Overuse injuries

- Approximate 30 – 50% of all sports injuries



PREVENTION is Better than CURE



Why does overuse injuries occur ?



- Intensive training => Repetitive microtrauma
 - - Tendons, bone, ligament
- Rate of Healing slower than the rate of Trauma

Why Overuse Injury always recur?

Did not address the underlying cause!

Risk Factors

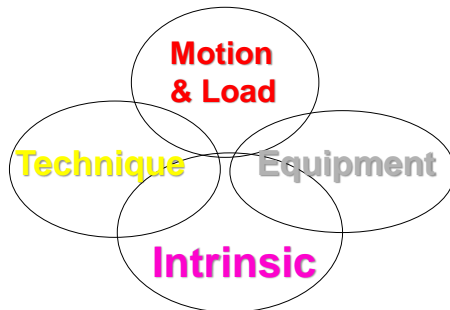
Extrinsic Factors

- Training errors & inappropriate conditioning
- Venue
- Improper footwear
- Previous injury

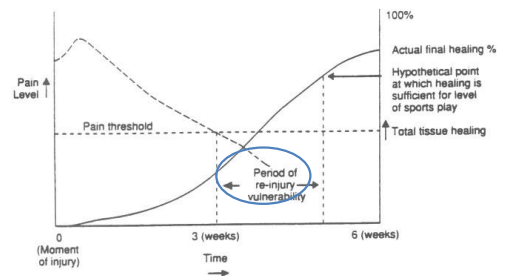
Intrinsic Factors

- Muscle Imbalance
- Lack of flexibility
- Nutritional factors
- Anatomical Abnormalities

Combination of factors



TOO SOON.... TOO EARLY



Preventing Overuse Injuries

- Recognize & Correct Poor **technique / posture**
- **Proper Training Program** under coaches/medical 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

Key to injury prevention: STRENGTH, FLEXIBILITY, ALIGNMENT



No Pain No Gain!

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Our roles in youth sports



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Active School Project

School PE Teachers' Empowerment Program
Sports Injury Prevention education



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CUHK KT Fund

Support program for Secondary School Student Athletes



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CUHK KT Fund

Support program for Secondary School Student Athletes

- 12 workshops
- More than 600 secondary school athletes



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Support to the HKSSF Team

- Medical Support to the HKSSF team attending the 全国中学生运动会



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Support to the HKSSF Team

- Injury Prevention Workshop to Team leader and coach



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Support to Youth football players

- Collaboration with the Kitchee Football Team
- School Injury Prevention Workshop



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香港足球總會 保良局足球發展基金
足動全城女子足球發展計劃
運動科學工作坊
主辦機構: CUHK Sports Science Institute

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CUHK university team support

- Medical consultation
- On-field medical support
- Clinical Sport Trainer (CST) support



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CUHK university team support

- Team Captain Workshop
- Participants:
 - Sports team captains
- Content:
 - Introduction
 - Rotation (30 mins each)
 - Massage + Foam roll
 - Basic Taping
 - Injury Prevention exercise + Dynamic Stretching



How to make it sustainable & workable?

- Engage the teachers
- Train the Trainer
- Accreditation

Sports Trainer Course (3-days)

Accredited by Sports Medicine Australia

Application Deadline: 31 Jul 2016 / 17 Feb 2017

Sports Trainer Course 運動創傷防護員課程

- 於香港首辦
First course in Hong Kong (Since 2012)
- 由香港中文大學及香港運動醫學及運動科學學會推動
Initiated by The Chinese University of Hong Kong and HKASMSS
- 與澳洲運動醫學合作
Co-developed by Sports Medicine Australia
- 超過200個已受訓的防護員
More than 200 trained sports trainers



Train the trainer – The Teachers

CUHK SPORTS MEDICINE 中大運動醫學



- ### Admission Requirement
- ⇒ First Aid Certificate
 - ⇒ (1) Teachers equipped with degree in PE Education or Sports Science
 - ⇒ (2) Coaches or Athletes nominated by National Sports Association, with at least 2 years relevant experience in Sports Coaching/training

	初階 (Level 1)			進階 (Level 2)		
	開班次數	學員	資歷認證	開班次數	學員	資歷認證
2013	1	37	37	\	\	\
2014	2	39 (64+23)	39	1	19	19
2015	1	35	35	\	\	\
2016	2	63 (33+28)	63	1	17	15
2017	1	31	31	1	13	TBC
	總數	174	174	總數	49	34



Accredited ST breakdowns

	SMA course						MSc SMA Sports Trainer accreditation			
	初階 (Level 1)			進階 (Level 2)			總人數	Level 1	Level 2	
年份	開班次數	學員	資歷認證	開班次數	學員	資歷認證				
2013	1	37	\	\	\	\	2013-14	19	18	18
2014	2	39 (6+33)	39	1	19	19	2014-15	20	16	4
2015	1	35	35	\	\	\	2015-16	14	14	4
2016	2	63 (35+28)	63	1	17	15	2016-17	26	26	4
2017	1	31	31	1	13	TBC	2017-18	19	TBC	TBC
	總數	174	174	總數	49	34	總數	75	74	30

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運動醫學在社區



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運動醫學在社區 Training & Education



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運動醫學在社區

Engagement of them in different on-field supports



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TEAM PHYSICIAN





LOVE SPORTS PLAY SMART
 Promote Sports Medicine to another level.....
 SPORTS MEDICINE IN COMMUNITY



Thank you!

 Clinical Service 臨床服務	 Community Service 社區服務	 Scientific Research 科研	 Education 教育
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Love Sports
CUHK SPORTS MEDICINE
中大運動醫學
Play Smart