Management of Sports Trauma

New Technology and Community Aspiration

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Passion

25 Years of Sports Medicine

Beijing 2008 - Olympic Games
Risk of sports injuries
Zhu Fang-yu (朱芳雨)

Cheng Ka Ho (鄭家豪)

6th Weeks later . . . .
World Champions!!!

- M/25
- Hong Kong Swimming Team Athlete
- Right knee injury for during exercise
- Right ACL tear
- ACL reconstruction done at the Prince of Wales Hospital in 2006

Philip Yee (余海平) -
Hong Kong Swimming Team Athlete

Wuzhu - Xanda
M/18
China National Team Wu Zhu (Xanda) athlete
History of right knee injury August 2006
c/o of residual right knee “weakness”, “mild pain” & “? Instability”
Seen by Ortho Surgeon in Shanghai with MRI done, suggested for ACL reconstruction using Synthetic graft

♦ Seen by us late January 2007
♦ Clinically:
  ♦ Lachman Gd II laxity
  ♦ Anterior Drawer Gd I laxity
  ♦ Pivot shift Gd I laxity
  ♦ McMurray test: +ve lateral joint line
♦ KT 1000:
  ♦ R: 3/4/6
  ♦ L: 2/3/4.5

Diagnosis
♦ ACL:
  ♦ AM bundle intact with good tension
  ♦ PL bundle partial tear with laxity

Post-OP Examination

Post-OP Rehabilitation
Day 2 Post-Op

Darren Beadman

"Must know" cases

ACL Athletic Career
ACL Rupture - Haemarthrosis

Warning Features:
- Intensive pain
- Immediate swelling
- Locking
- Feel a “Pop”
- “Dead” leg
- Cannot continue to play

Acute Symptoms

Haemarthrosis

75% of ACL Injuries

Acute Signs

Effusion | Haemarthrosis
---------|----------------
pain on-set | moderate hours - days | intense high tension a few hours
swelling moderate hours - days

MRI

X-Ray

Arthroscopic Assessment
**ACL Injury – Delay in treatment**

**Operative Treatment**
- Mechanical stability +
- Functional Stability +
- Meniscal Injuries +
- Osteoarthritis?

**Meniscal injury**

**Meniscus Tear**
- Acts as the shock absorbers for the knee
- Reduce the stress applied to the articular cartilage
- Limited blood supply to the peripheries of the meniscus
- Difficult to heal when injured
Accurate diagnosis

LIU Hai-xin (劉海鑫)
- F/21
- Shanghai Elite Wu Zhu (wrestling) Athlete
- Left knee injury pain and “clicking” sensation since April 2006
- Seen by Shanghai Ortho surgeon with MRI done, suggested of Medial meniscus horizontal tear from anterior to posterior
- Suggested for arthroscopic menisectomy

Seen by us late January 2007
Clinically:
- Full AROM
- Tenderness over medial joint line
- McMurray test: equivocal
- Lachman/Ant Drawer/Pivot shift: NAD
- KT 1000: NAD

Diagnosis
- Large Medial plica impinging PF joint
- Medial meniscus intact, stable, no lamination
Post-OP Examination

Post-OP Rehabilitation

Management
Team Work

Zhou Hong-bo (趙宏博)

Zhou Hong-bo (趙宏博)
A New Level of Excellence

Added Value

Deep Collaboration

Sports Medicine, CUHK

Rehabilitation Sciences, PolyU

Network

Athlete Dialogue

New Concept

New Technology

Rotational Test

Method - Marker Set

Posterior View  Anterior View  Lateral View
TENDINOPATHIES - Nomenclature

Tendinosis
Symptomatic tendon non-healing without inflammatory repair

Tendinitis
Symptomatic inflammatory repair and response

Pathogenesis of chronic tendinopathy

A proposed model of pathogenesis of chronic tendinopathy

Prevention
**Ankle Injuries**

**Mechanism of Ankle Sprain**

- Frequently occurs when forced inversion sprains with some degree of plantar flexion
- Most common injuries to the anterior talofibular ligament (ATFL)
- A “snap” or “pop” sound may occur at the time of the injury
- Pain and swelling on the lateral aspect of the ankle

**Ankle Sprain**

**Mechanism of Injury**

- Stop bleeding
- Reduce swelling

**Acute Management**

**Mechanism of the Airbag Safety Device in Vehicle**

- There is a three-step mechanism for the airbag safety device in vehicle.
- There are sensors around the car body. The sensors detect external forces and identify if there is an accident. Finally, an airbags are inflated to protect the driver and passengers.

**Mechanism of the Proposed Sprain-free Shoe**

- We proposed the same mechanism in the sprain-free shoe.
- The mechanism should (1) detect external force and foot motion, (2) identify if a sprain is occurring, and finally (3) evoke protective mechanism to stop or delay the sprain till the human intrinsic protective mechanism is activated.
Ankle protection
踝關節之保護
Flexibility and Agility
柔軟度及靈活度
Normal condition
一般情況之下
When sprain is occurring
快要崴腳之時
Change the footwear properties when in need.
在需要時調整鞋的特性.
Prevention – Intelligent sprain-free shoe?
預防崴腳–智能防崴腳運動鞋?
♦
The study involves Orthopaedics, Sports Medicine, Sports Biomechanics and Mechanical Engineering specialties.
這課題的研究人員包括矯形外科, 運動醫學, 運動生物力學,及機械工程的專家...
Study 5 – Correction mechanism
♦
In smart-braced condition, provided that a correction and quick identification signal was triggered, the smart brace hardens in a very short time to delay the sprain motion.
The aim is to delay the sprain motion till the human peroneal muscle can react, which is at a time of about 60-90ms.
Public Education & Participation
Overuse Injuries
過勞損傷
70kg Runner in 1 Mile
径賽者
• 1175 Steps
• Ground Reaction 地面反彈力
250 - 300 % Body Weight
220 Tons of Forces
Pain and tenderness over fracture site with activity
活動時骨折處疼痛及壓痛

Tibia 腓骨
Metatarsal 趾骨
Fibula 腓骨
Navicular 足舟骨
Pars 椎弓根

Localized “hot spot” on bone scan 骨掃瞄“熱結節”

Your Body Will Let You Know How Much To Do
你的肌體可告知你的活動強度

Hong Kong Marathon 2007
Exercise

High prevalence of obesity in Hong Kong

Obesity in Hong Kong Children

10.1% in children from age 6 – 11

• 8.9% in Girls
• 11.3% in Boys

Exercise Prescription for Obesity

Tai Chi Exercise & Osteoporosis

- Tai Chi
- Reduce menopause and age-related bone loss
- Improve muscle strength
- Improve body flexibility
- Improve body balance/coordination
- Reduce fragility fractures
- Earlier intervention is needed to reduce the rate of bone loss
A recent "Tai Chi Extravaganza" held on Sep 30, 2007 in Hong Kong has broken the record in 2001 (10,000 people practising Tai Chi Chuan for 30mins) and set a NEW Guinness world record of 20236 people practising Tai Chi Chuan for 20 minutes simultaneously.

Team Physician Development Course (TPDC), Arthroscopy, Sports Nutrition & Sports Rehabilitation Courses

Team Physician Advance Course (TPAC)

Personal Advancement

CPD

Degree

Diploma

Certificate

Team Physician Advance Course (TPAC)

Team Physician Development Course (TPDC), Arthroscopy, Sports Nutrition & Sports Rehabilitation Courses
Clinical Skills

Special Tests

THANK YOU