

The Role of Sports Physiotherapy in the Elite Training System



Romy Chan
Sports Medicine Department
Hong Kong Sports Institute

Objectives

- To understand the background and development of the physiotherapy profession
- To understand the roles and scope of practice of physiotherapy in the elite training system
- To explain the scientific base of physiotherapy practice on management of some musculoskeletal sports-related conditions
- To explain the scientific rationales of some injury prevention programs in physiotherapy
- To introduce the range of physiotherapy services at SMD
- To outline the new referral and booking system at SMD

Physiotherapy A century old profession



History of the Physiotherapy Profession

- Chartered Society of Physiotherapy, 1894
- American Women's Physical Therapeutic Association, 1921
- American Physiotherapy Association, 1930
- PT in great demand, WWII, Polio epidemic, 1940-50
- Hong Kong Physiotherapy Association, 1963
- Development of Sports Physiotherapy, early 70's

Professional Qualifications of Physiotherapists

USA	UK/ Australia/ HK
Bachelor of Physical Therapy	Diploma in Physiotherapy
Master of Physical Therapy (MPT)	Bachelor of Physiotherapy (BScPT)
Master of Science in Physical Therapy (MScPT)	Master of Physiotherapy in
Specialization via Board of Physical Therapy Specialities:	• Cardio-respiratory care
• Sports, orthopaedics , geriatrics, electrotherapy, paediatrics, neurology, cardiopulmonary	• Geriatric
Doctor of Physical Therapy (DPT)	• Manipulative physiotherapy
	• Paediatrics
	• Sports physiotherapy
	Clinical Doctorate
	Doctor of Philosophy (PhD)

Sports Physiotherapists

- Therapists who have advanced experience, training or education in sports specific assessment, treatment and rehabilitation; and who possess knowledge, skill and competence in clinical practice, research and issues related to sports medicine.

Elite Training Systems

- Hong Kong Sports Institute
- Australian Institute of Sport
- Japan Institute of Sports Science
- Sport Scotland
- Sports Institute, Northern Ireland
- UK Sport/ UK Sports Institute Network



Hierarchy of Sports Physiotherapy Service Delivery



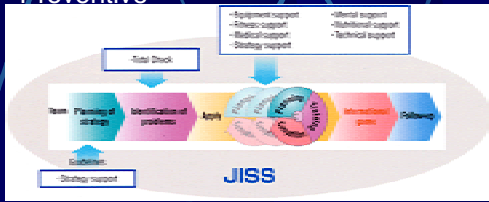
Injury Management

- Reactive
- Acute Vs Chronic
- Rehabilitation



Total Sports Clinic Model

• Preventive

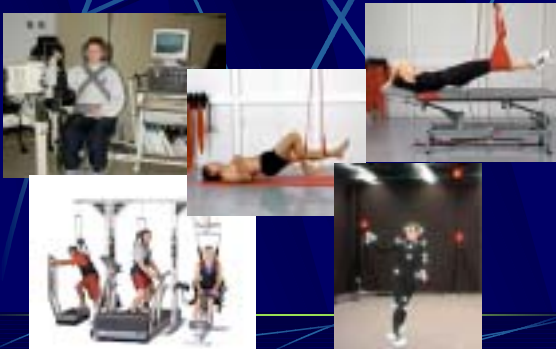


Applied Research

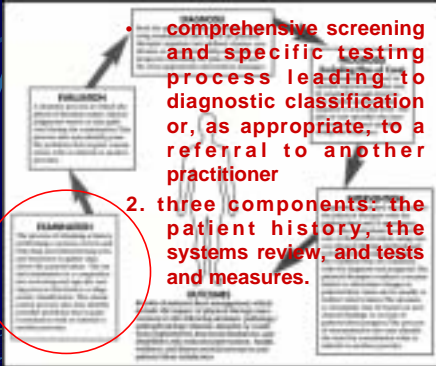
• Proactive & Reactive



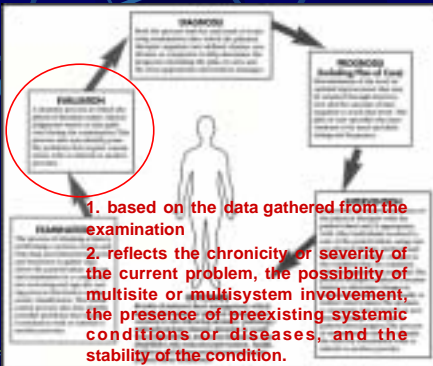
Innovation



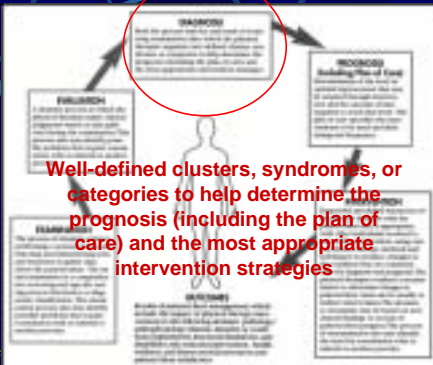
Physiotherapy Management



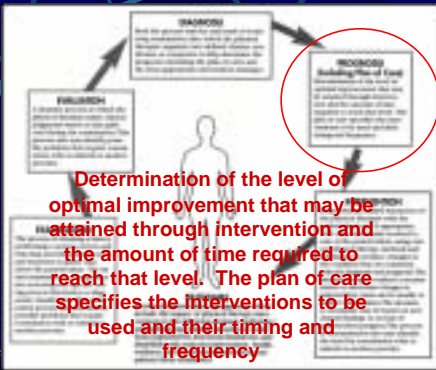
Physiotherapy Management



Physiotherapy Management

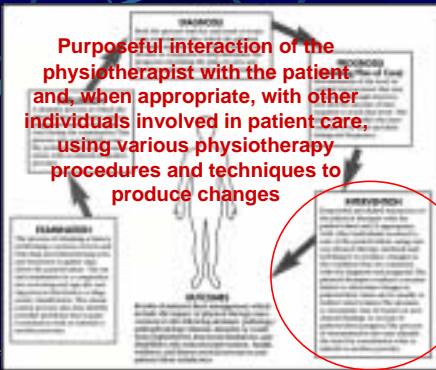


Physiotherapy Management



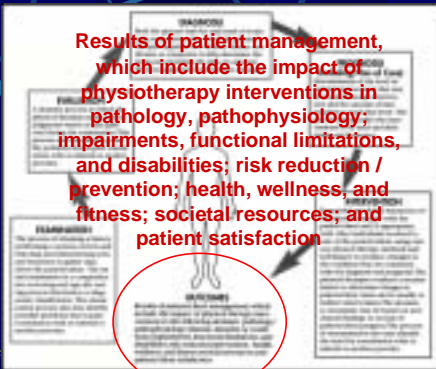
Determination of the level of optimal improvement that may be attained through intervention and the amount of time required to reach that level. The plan of care specifies the interventions to be used and their timing and frequency

Physiotherapy Management



Purposeful interaction of the physiotherapist with the patient and, when appropriate, with other individuals involved in patient care, using various physiotherapy procedures and techniques to produce changes

Physiotherapy Management



Results of patient management, which include the impact of physiotherapy interventions in pathology, pathophysiology; impairments, functional limitations, and disabilities; risk reduction / prevention; health, wellness, and fitness; societal resources; and patient satisfaction

Sports Physiotherapy Management

Examination

History taking
System review
Tests & measures



Evaluation



Diagnosis

Prognosis

Intervention



What Should You Expect From Physiotherapy?

- gives you a thorough examination and evaluation
- gives you a physical diagnosis and prognosis
- provides interventions, treatment and reexamination

Clinical Examples

Physiotherapy Management

Supraspinatus tendinopathy



Supraspinatus Tendinopathy

- Usually a result of overuse or to impingement from altered biomechanics of the shoulder, rather than from using the arm excessively on a particular occasion.
- Contributing factors are changes in muscle length, strength, stiffness, and patterns of participation that arise from repeated movements and sustained postures.

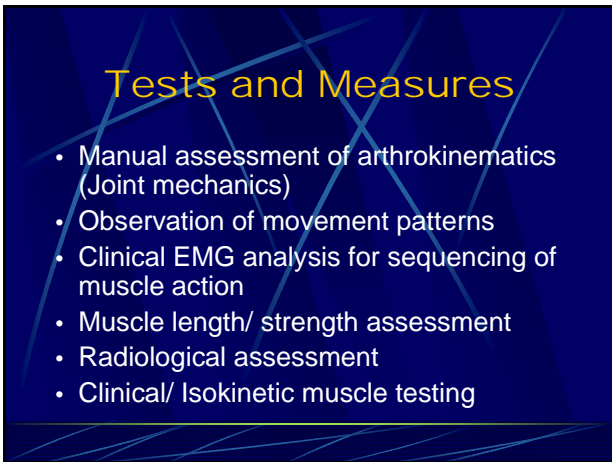
Sahrmann, 2002

Possible causes of Supraspinatus tendinopathy

- Primary Vs Secondary impingement (Neer & Hawkins)
- Posterior capsule tightness (Tyler TF 2001)
- Inadequate upward rotation of the scapula during shoulder flexion
- Insufficient muscle tension generation and/ or altered timing of activation from the humeral depressors (i.e. teres minor, infraspinatus, subscapularis) during shoulder flexion/ abduction
- Deficient control of the serratus anterior
- Altered position of scapula as a result of muscle imbalance (i.e. shortening of pectoralis minor, lengthened upper trapezius)
- Hooked acromion (Bigliani LU et al 1986)
- Excessive kyphosis of the thoracic spine





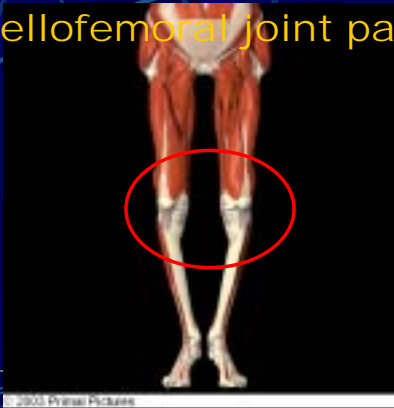


Physiotherapeutic Intervention

- Electrotherapy
- Manual therapy
- Specific stretching and strengthening
- Movement control training



Patellofemoral joint pain



Possible causes of Patellofemoral Joint Pain

- Faulty biomechanics in the lower extremity (e.g. knock knee, flat feet)
- Shortening of quadriceps muscle and/or hip flexors
- Altered muscle firing pattern between the vastus lateralis and vastus medialis obliquus
- Hypermobility patella




Tests and Measures

- Manual assessment of arthrokinematics (Joint mechanics)
- Observation of movement pattern
- Clinical EMG analysis for sequencing of muscle action
- Muscle length/ strength assessment
- Radiological assessment
- Gait assessment
- Static and dynamic foot assessment

Physiotherapeutic Intervention

- Electrotherapy
- Manual therapy
- Specific stretching and strengthening
- Taping
- Motor control training (EMG)
- Orthotic devices

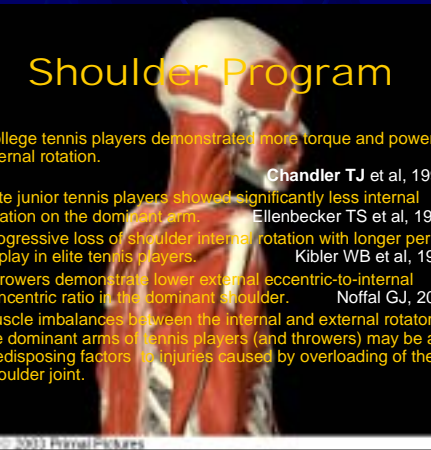


Examples

Injury Prevention Programs

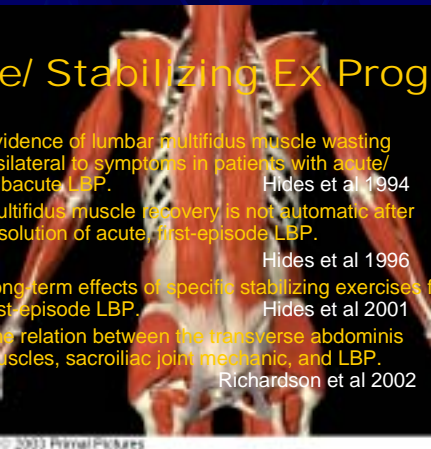
Shoulder Program

- College tennis players demonstrated more torque and power in internal rotation. Chandler TJ et al, 1992
- Elite junior tennis players showed significantly less internal rotation on the dominant arm. Ellenbecker TS et al, 1996
- Progressive loss of shoulder internal rotation with longer periods of play in elite tennis players. Kibler WB et al, 1996
- Throwers demonstrate lower external eccentric-to-internal concentric ratio in the dominant shoulder. Noffal GJ, 2003
- Muscle imbalances between the internal and external rotators in the dominant arms of tennis players (and throwers) may be a predisposing factor for injuries caused by overloading of the shoulder joint.



Core/ Stabilizing Ex Program

- Evidence of lumbar multifidus muscle wasting ipsilateral to symptoms in patients with acute/subacute LBP. Hides et al 1994
- Multifidus muscle recovery is not automatic after resolution of acute, first-episode LBP. Hides et al 1996
- Long term effects of specific stabilizing exercises for first episode LBP. Hides et al 2001
- The relation between the transverse abdominis muscles, sacroiliac joint mechanic, and LBP. Richardson et al 2002



Multi-disciplinary model of practice



Physiotherapy Services

- Injury management
- Rehabilitation
- Musculoskeletal screening
- Injury prevention programs
- Muscle recovery/ On-field support
- Biomechanical assessment and orthotic fabrication services
- Teaching and research

Seeking for physiotherapy services?



Medical referral
required
for
non-scholarship athletes



New booking system



Thank You!