

EUROPEAN COACHES SYMPOSIUM

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MANAGING TENNIS SPECIFIC INJURIES

“Prehab en rehab for shoulder overuse injuries”



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CONTENT

I. Theory and praxis

- Charge book of the elite tennis player
 - shoulder anatomy
 - technical demands
- Adaptations and their relation to common injuries
- General training goals for prehab and rehab

II. Praxis

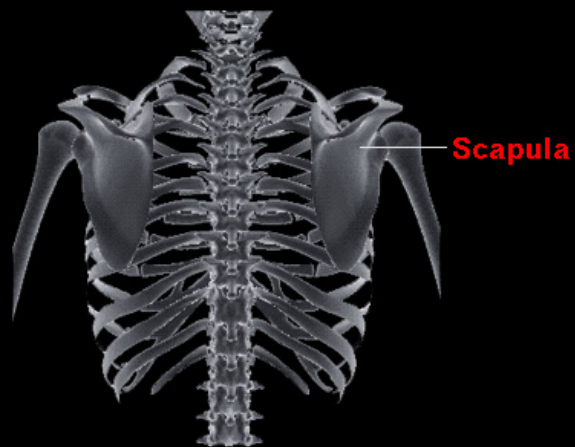
- On court technical considerations for moving economically and healthy
- Off court rehab/prehab and the link to specific techniques

① INTRODUCTION TO ANATOMY

- Ⓐ SCAPULO THORACIC
= shoulder blade and thorax junction

- Ⓐ GLENOHUMERAL
= upper arm and shoulder blade junction

Ⓐ SCAPULO THORACIC



Ⓑ GLENOHUMERAL



② TECHNICAL CHARGE BOOK

Ⓐ FH & SERVE

1. Most dominant shots in modern tennis
2. Biomechanical similarity



Ⓑ SCAPULO THORACIC (Shoulder blade-thorax)



Ⓒ GLENOHUMERAL (Upper arm-shoulder blade)



③ ADAPTATIONS & INJURIES (I)

Ⓐ MUSCULO - SKELETAL ADAPTATIONS

1. Scapulo-thoracic
 - Depression
 - Anteriorisation
 - Tilting / Winging
2. Glenohumeral
 - Decrease in sub-acromial space
 - Internal rotation dominance
 - Restriction posterior capsule

Restriction posterior capsule

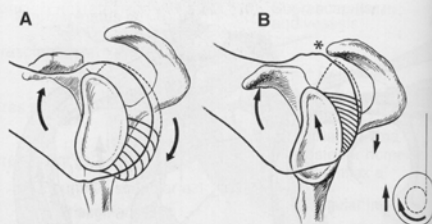
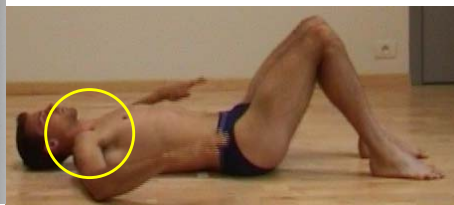


Figure 5-42

Stiffness of the posterior glenohumeral capsule. A. Normally lax posterior capsule allows the humeral head to remain centered in the glenoid during shoulder flexion. B. Stiffness of the posterior joint capsule forces the humeral head upward against the anteroinferior acromion as the shoulder is flexed. (From Rockwood CA, Matsen FA: *The shoulder*, vol 1, Philadelphia, 1990, WB Saunders.)



③ ADAPTATIONS & INJURIES (II)

Ⓑ NEURO-MUSCULAR ADAPTATIONS

1. Dominance in co-ordination
2. Strength
 - decrease in strength in antagonists
 - decrease in strength-endurance in antagonists
3. Functionality
 - *Scapulo-thoracic* Instability and rhythmical dysfunction
 - forward & backward
 - upward & downward
 - *Glenohumeral* Instability
 - internal / external rotation ratio
 - muscle dysfunction in deceleration

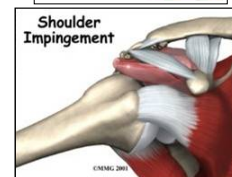
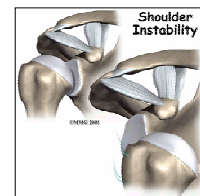
③ ADAPTATIONS & INJURIES (III)

Ⓒ BIOMECHANICAL POINT OF VIEW

1. AGONIST MUSCLES → strengthen / shorten
2. ANTAGONIST MUSCLES → weaken / lengthen
3. ROM INTERNAL ROTATION ↓

Ⓓ COMMON INJURIES

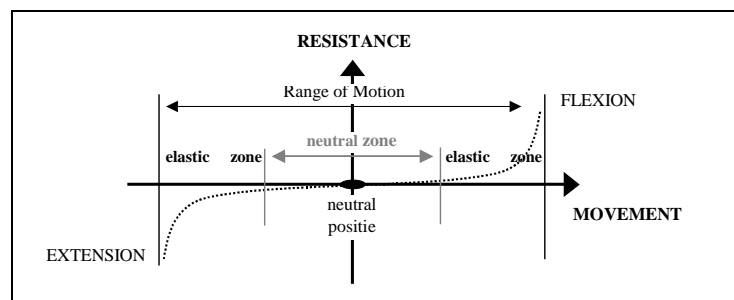
1. Overuse
 - antagonists because load capacity decreases
 - structural overuse
2. Shoulder instability
 - muscle function
 - structural damage



④ TRAINING STRATEGY (I)

Ⓐ ON COURT = specific ergonomics

1. Mind reasonable anatomical joint positions
2. Multi-segmental distribution of forces
3. Preparation range ~ follow-through range

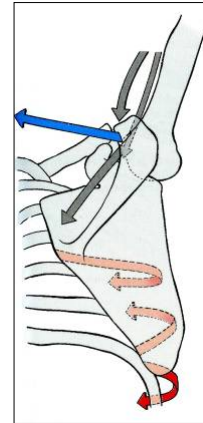
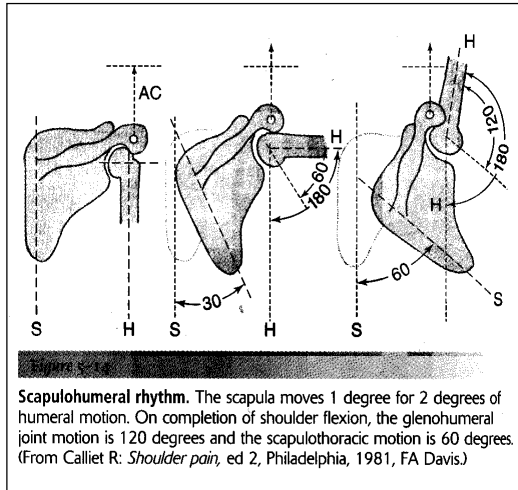


④ TRAINING STRATEGY (II)

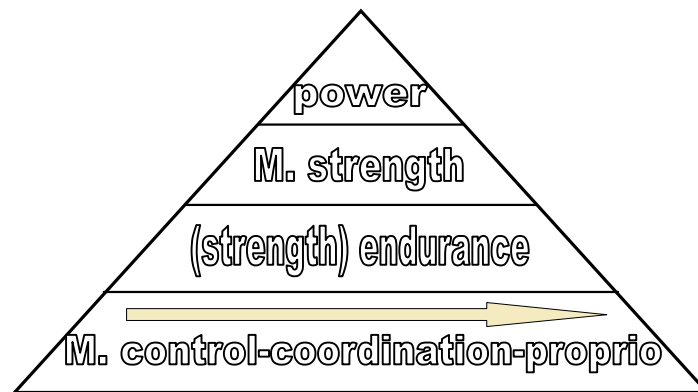
Ⓑ OFF COURT = (re-) training

1. Training pyramid
 - repositioning
 - scapulo-thoracic slide
 - antagonists training: intra-scapular & external rotation
2. Biomechanical progression
 - analytic to global and proximal to distal
 - general to specific
3. Stretching of the posterior capsule

SCAPULO THORACIC SLIDE



TRAINING PYRAMID



@Prof. S.
Brumagne

READY? GO!