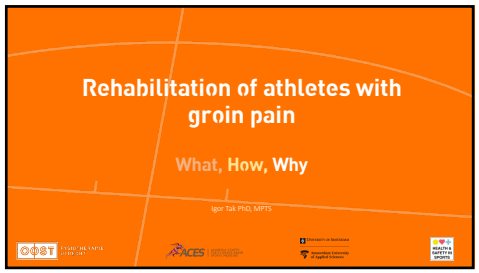
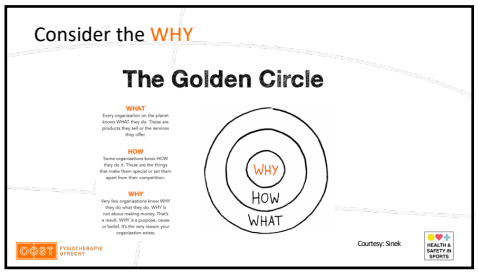
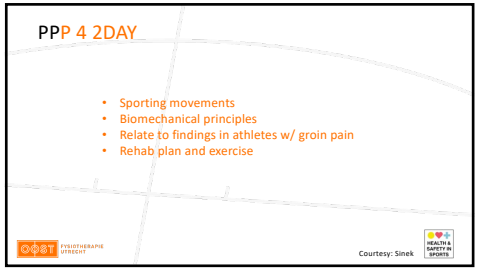

Rehabilitation of athletes with groin pain
What, How, Why
Igor Tak PhD, MPTS

1


Consider the WHY
The Golden Circle
WHAT
HOW
WHY
WHY
HOW
WHAT
Courtesy: Sinek

2


PPP 4 2DAY
Sporting movements
Biomechanical principles
Relate to findings in athletes w/ groin pain
Rehab plan and exercise
Courtesy: Sinek

3


Understanding = essential
Different sports same concepts
erdgas
BuzzFeed

4

Backswing | Downswing

or

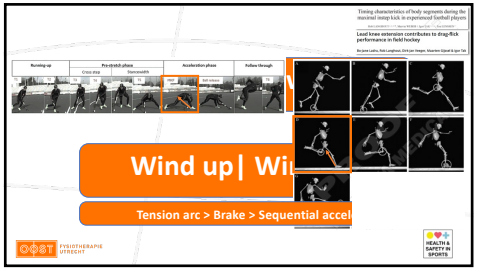
Wind up| Wind off

it's everywhere

5

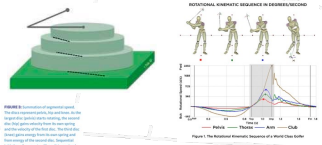
Tension arc

6



7

Kinematic sequence & energy transfer



Tak & Langhout, 2017

Dissociation allows energy flow – not moving as a block

8

9

Coordination continuum principle

Sequencing and timing bodies actions to create movement

High levels of force are through **simultaneous segmental movements**

Lower force and high speed movements through sequential pattern of movement

It's a **continuum**

10

Segmental interaction principle

Using your body parts in order to create maximum power in a shot.

Begins with the **largest, slowest, strongest segments** (TRUNK) and works through via less slow **towards fastest segments** (shank / foot or fore arm / hand).

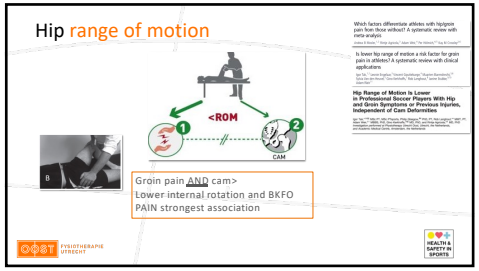
11

Range of motion principle

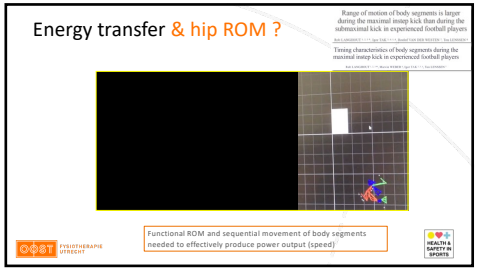
of the physically possible motion. The **Range-of-Motion Principle** states that less range of motion is most effective for low-effort (force and speed) and high-accuracy movements, while greater range of motion favors maximum efforts related to speed and overall force production (Hudson, 1989).

Compare playing darts and throwing javelin
Tennis and football ?

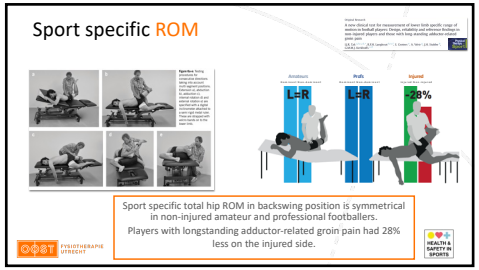
12


Hip range of motion
<ROM
CAM
Groin pain AND cam>
Lower internal rotation and BKFO
PAIN strongest association

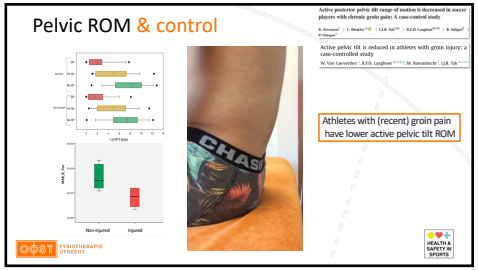
13


Energy transfer & hip ROM ?
Functional ROM and sequential movement of body segments needed to effectively produce power output (speed)

14

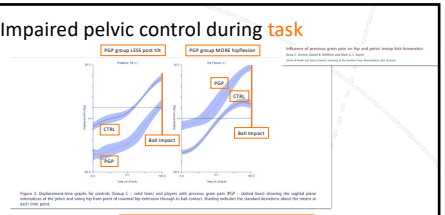

Sport specific ROM
L-R
L-R
-28%
Sport specific total hip ROM in backswing position is symmetrical in non-injured amateur and professional footballers.
Players with longstanding adductor-related groin pain had 28% less on the injured side.

15


Pelvic ROM & control
Athletes with (recent) groin pain have lower active pelvic tilt ROM

16

Impaired pelvic control during task



Athletes with previous groin pain display more anteriorly tilted pelvic position throughout movement thus less hip flexion

17

Pubic lift & adductor function

Anterior tilt > hip flexion > adductor shortened position (force production ↓)
Impaired load transfer

Comparable to shoulder issues and rotator cuff function

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Pelvic control and load transfer


Impaired load transfer (lower abdominal region)
Groin issues left side

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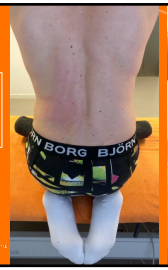
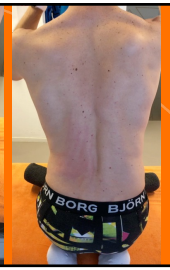
Not just AP
3 Dimensional!

Groin issues
left side

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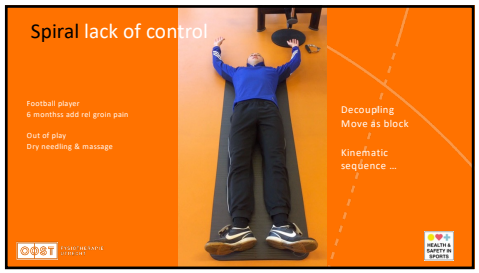
Spiral lack of control
Football player
6 monthss add rel groin pain
Out of play
Dry needling & massage
Decoupling
Move as block
Kinematic
seqdence …

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Loss of spiral ROM and dissociation
Football player
4 monthss inguinal pain
Recurrence
Planning towards end of season cupfinal
Keep in play
Surgery

22


Euro top 10
100 m hurdles
Spondylolisthesis
Low back pain
Groin pain

23


Euro top 10
100 m hurdles
Spondylolisthesis
Low back pain
Groin pain

24

Rehab plan

- MT (short session)
- ROM Principle (Optimize 3D ROM of Hip/Trunk segments)
- Move through range (Muscle control full end range, sequencing / coord as needed)
- Keep energy in the system (Cave weak areas in diff planes)
- Load from slow > light > heavy > speed
- Accelerations AND decelerations
- Running AND sprinting AND COD

LOAD ASAP AS TOLERATED ACCORDING MOVEMENT PRINCIPLES
NOT THE SINGLE MUSCLE (GROUP)

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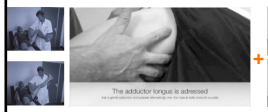
Adductor-related groin pain



MT of adductors decreases pain and allows
early return to sport + ROM Sport specific increase
HVLT for segments of kinetic chain

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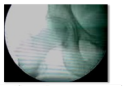
Improve hip ROM



Hip IR increases after HVLT hip & w/ posterior tilting
> Biological workspace ++

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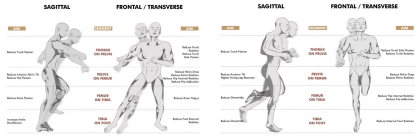
Weak links

Clinical and biomechanical outcomes of rehabilitation targeting intersegmental control in athletic groin pain: prospective cohort of 205 patients



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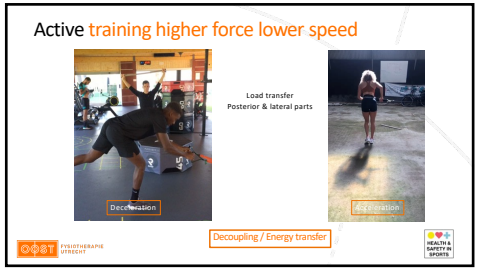
Active ROM training
Optimize and control 3D ROM

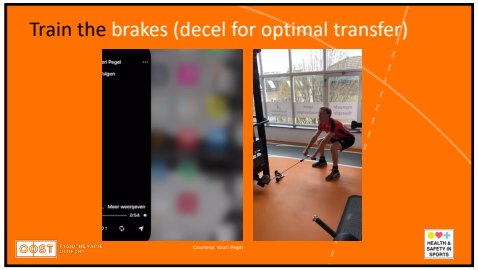
29


Optimize loading capacity (slow controlled)
Football player
Recent ADD +ING
injury

30


Active training higher force lower speed
Deceleration
Load transfer
Posterior & lateral parts
Acceleration
Decoupling / Energy transfer

31


Train the brakes (decel for optimal transfer)

32

Low force high speed – segmental interaction

Decoupling
Acceleration
Load transfer
Anterior parts

Courtesy: Rob Langhout

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Optimize loading capacity

Dynamic uniplanar > multiplanar
Slow > fast

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THANK YOU

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