



Warming up, Injury Prevention & Core Stability.

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This Workshop

- **Discuss the benefits of a warm up**
- **Practical examples of good practice.**
- **Structure and planning to limit injury.**
- **Recovery methods.**
- **Core stability theoretical**
- **Core stability practical.**
- **Questions?**

Sports Player's Reasons

- **Warms up the body.**
- **Helps prevent injury.**
- **Mentally prepares you for the sport.**
- **Because the coach tells you to!**

Why we warm up

Technical Reasons.

- Increased blood flow through active tissues as local vascular beds dilate, increasing metabolism and muscle temperatures
- Increased HR, stroke volume, cardiac output & systolic blood pressure
- Increased respiration & oxygen uptake
- Increased core temperature & thermoregulation **(Climate)**
- Greater economy of movement because of lowered viscous resistance within warmed muscles.
- Increased speed of contraction and relaxation of warmed muscles.
- Increased nervous system activity to the muscles **(power)**

- Increased speed of contraction and relaxation of warmed muscles.
- Facilitated nerve transmission and muscle metabolism at higher temperatures.
- The reduction of muscle stiffness. **(returning from injury)**

- Cold joints, tendons and muscles can get strained by sudden movement or exertion.

Key focus

Structure. (often group based/ coach led.)

- Light jog movements,
- Balance & stability,
- Dynamic movement,
- Skill at game intensity.

Similar Muscles that will be used. (no arm work in tennis)

- Dynamic,
- Multi-joint

Similar movement patterns that will be used.

- Position specific

Similar skills that will be used.

- Passing
- Shooting
- Hand-eye coordination

Light jog movements

- Jog forwards/backwards.
- Side shuffle
- Carioca
- Butt kick
- High knees.

Dynamic movements

- Overhead lunge fwd/bwd.
- Press up lunge.
- Lateral squat.
- Walking Hurdle in and out.

Stability/Mobility

- Single leg good morning.
- Partner ball work.
- Ball pick up.
- Hop and hold both/single.
- Stick work.

Skill/game movements

- Rugby Kneeling wrestle.
- Kneeling scrum.
- Passing drill to tackle.

Injury Prevention



“It was like a knife slicing through the muscle”

Derek Redmond Barcelona 1992

Most Common Injuries

- 1. Achilles Tendon.**
- 2. Bone Fractures.**
- 3. Ligament Damage. (knee/ ankle/ shoulder.)**
- 4. Back injuries. (disc/strain)**
- 5. Metatarsal.**
- 6. Hamstring strain/pull.**
- 7. Shin splints**
- 8. Sprained Ankle.**
- 9. Dead Leg.**

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Primary = Reduce Occurrence

External

- Equipment
- Environment
- Training
- warm up/cool down

Internal

- Age
- Skill level
- Physical factors
- Biomechanics

Secondary = Reduce Complications

- R = Relative rest
- E = Elevation
- C = Compression
- I = Ice
- P = Protection
- E = Early referral

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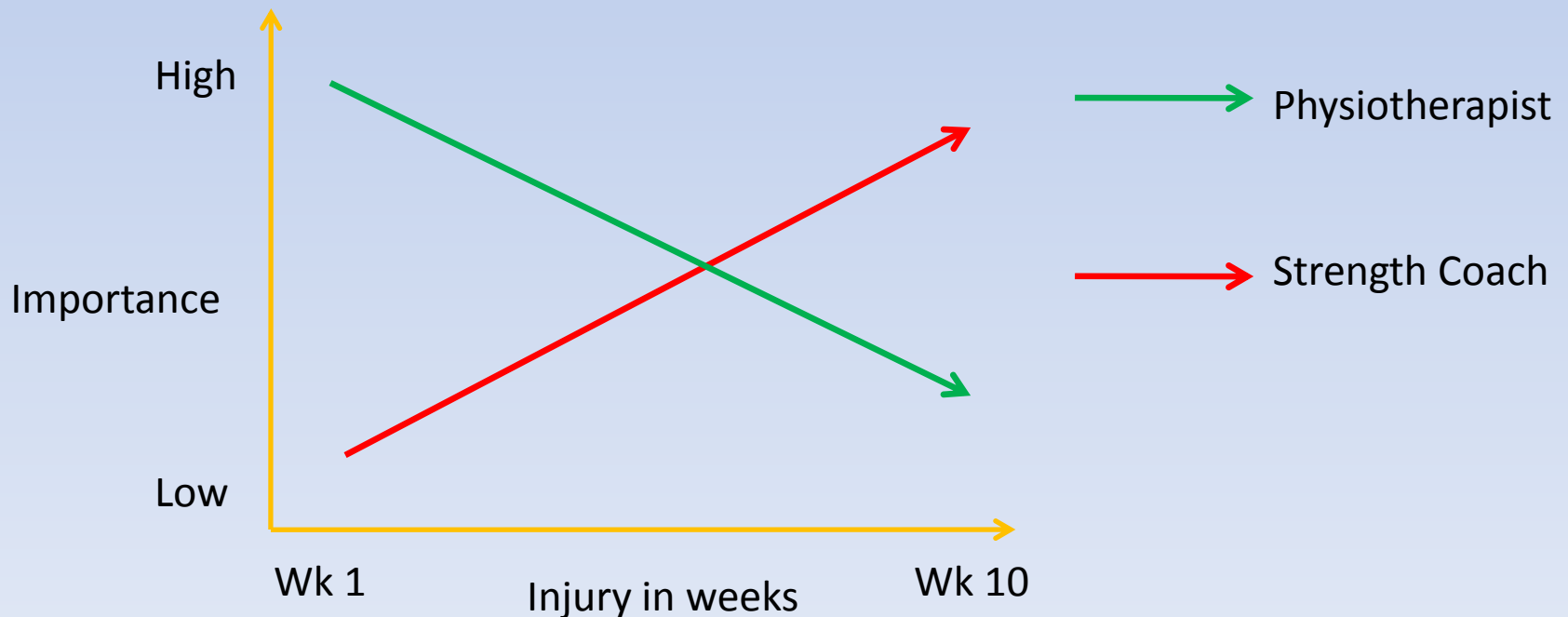
Tertiary = Reduce Recurrence.

Ensure athletes are fully recovered before they return

Have a systematic approach to the rehabilitation

Return to sport guidelines

Defining the roles of recovery



Recovery Model

Psychological
intervention/
floatation tanks

Recovery pool work, clothing,
massage and other therapies

Structured Training Programme, reactive
programming, warm up/cool down,
stretching

Resting/ Sleeping/ Eating/Drinking

Core Stability

Posture and Control



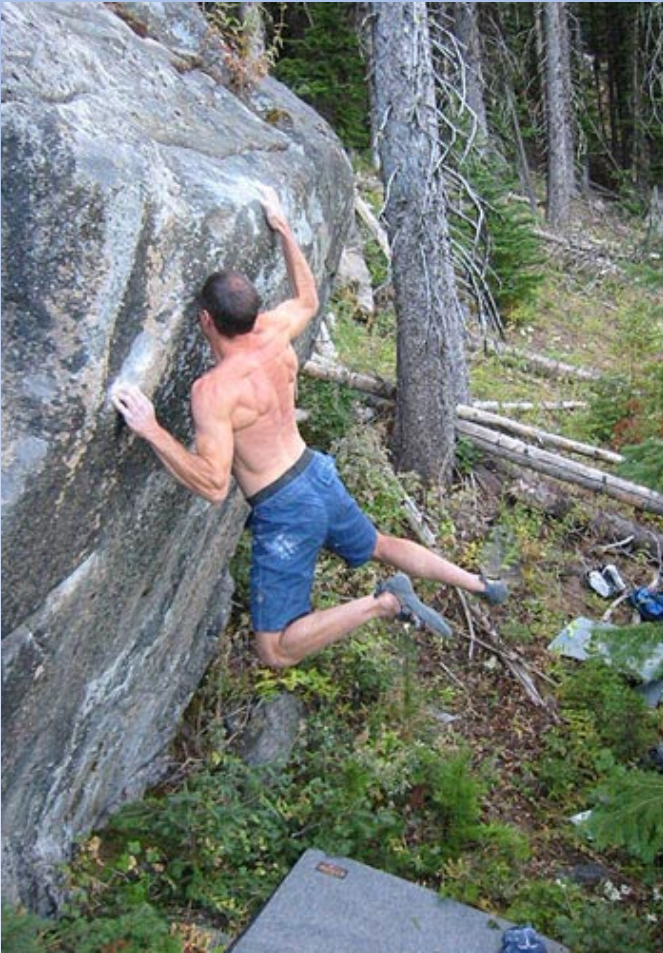
Streamline for speed



Impact absorption



Pillar to upper body strength



Rotation & Power



Stability/Strength/Power



Control through complex movements



Taking a Punch



Simply Amazing



Core stability

- **The aim of core stability training is to effectively recruit the trunk musculature and then learn to control the position of the lumbar spine during dynamic movements.**
- **Hodges and Richardson showed that the co-contraction of the TA and MF muscles occurred prior to any movement of the limbs. This suggests that these muscles anticipate dynamic forces which may act on the lumbar spine and stabilise the area prior to any movement.**
- **Hodges and Richardson also showed that the timing of coordination of these muscles was very significant, and that back injury patients were unable to recruit their TA and MF muscles early enough to stabilise the spine prior to movement.**

How will it help during sport?

- It will provide more support for your back and may reduce the risk of back injuries.
- It will provide a more stable base for arm and leg movements, improving the control and quality of your movements.
- It will improve your muscular co-ordination during movement.
- As the stabilising muscles gain more endurance you will be able to perform movements without your technique deteriorating excessively, due to fatigue.
- Your ability to hold off opponents in contact sports should improve.

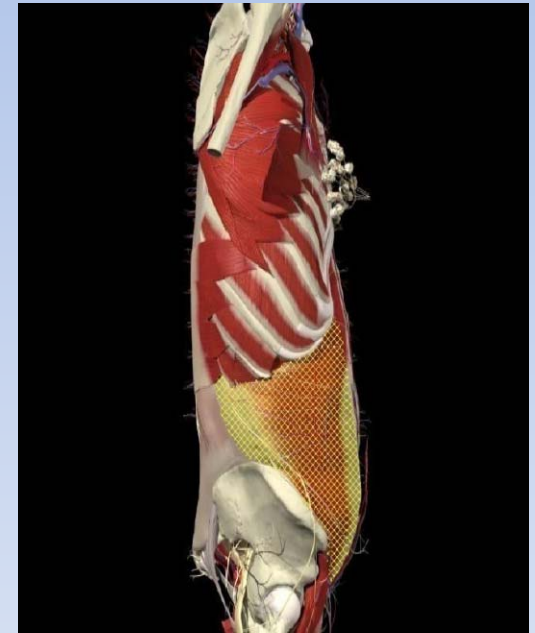
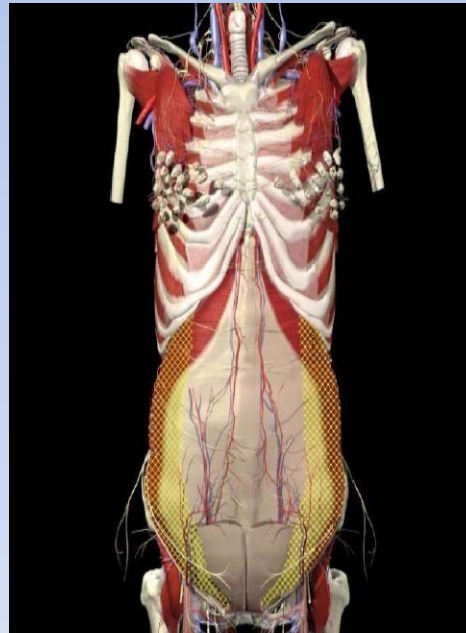
The Anatomy

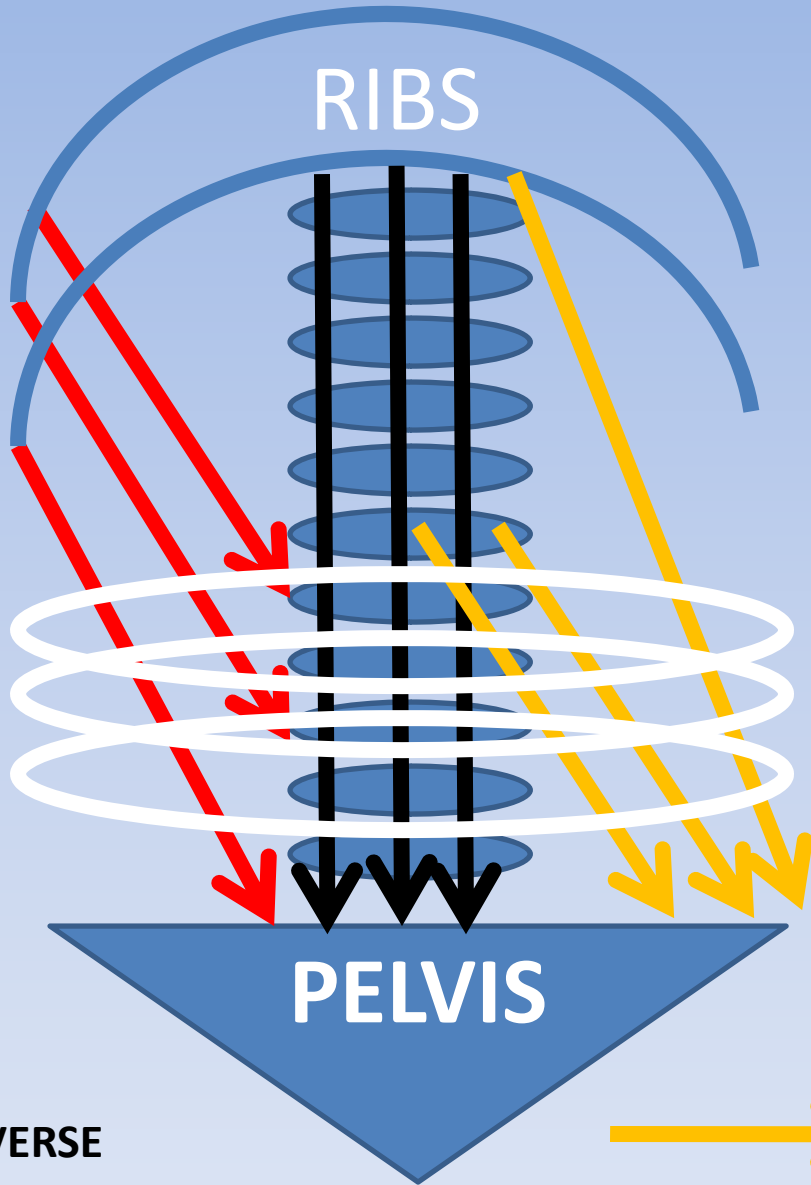
Local Core

Transverse abdominis
Segmental multifidus
Posterior psoas
Pelvic floor (brace)
Diaphragm (brace)

Global Shell

Obliques abdominals
Gluteals
Anterior psoas





TRANSVERSE



RECTUS ABDOMINALS



EXTERNAL OBLIQUES



INTERNAL OBLIQUES

Exercises

Strength Exercises

Abdominal Knee Touches



- Lay down on your back.
- Place both hands on the front of your legs.
- Head must look at the ceiling.
- Feet must stay flat on the floor.
- Slowly lift up.
- Keep the head looking over the top of the knees.
- Keep your arms straight.
- Finger tips must reach the end on the knee cap.
- Lower down under control.

Strength Exercises

Aerobic Ball Plank



- Face the aerobic ball, and use your elbows and toes as your base of support
- Keep your shoulders and hips in line
- Keep your legs straight and don't allow your shoulders to round
- Maintain this posture throughout the time required
- Keep core tight.

Strength Exercises

Spine rotation



- Lay on your back
- Hold club out at chest height
- Rotate your legs through 90 degrees
- Should always be under control
- Keep shoulders flat on the floor
- Movement should be slow and controlled

Strength Exercises

Resisted Oblique Rotations



- Sitting on the aerobic ball attach one end of the thera-band against a secure object, grasping the other with both hands.
- In a slow and controlled movement, maintaining good posture, rotate the body towards the opposite side.
- Throughout the motion arms should be in front and inline with the shoulders and hips forward facing.
- Control the movement on return.
- Repeat for both sides.

Strength Exercises

Swiss ball oblique



- Lay on your back over a swiss ball.
- Ball should be placed in your lower back.
- Both hands should be clasped behind the head.
- Slowly lift up and twist, reaching for your knee.
- Keep the hips still and feet flat on the floor.
- Slowly lower yourself down to start position.

Strength Exercises

Side Plank with leg lift



- Set yourself up with body straight from shoulders, hips, knees and feet and feet raised on a chair or box.
- lift the body into a straight line, parallel to the ground.
- Place the top arm onto the hips.
- Elevate the leg without dropping the hips.
- Keep the spine in a straight line.

Strength Exercises

Plank rotations



- Set yourself up in a plank position.
- With feet wide.
- Under control raise one arm off the floor.
- Enable shoulders to form a straight line.
- Slowly lower to the floor without dropping the hips.

Strength Exercises

Marit safins



- Lift weight off the floor and rest on your stomach.
- Raise your feet off floor, keep posture tight.
- Turn shoulders with the weight to each side.
- Keep the movement dynamic.
- Keep chest up and back straight.
- Don't let the feet touch the floor.

Strength Exercises

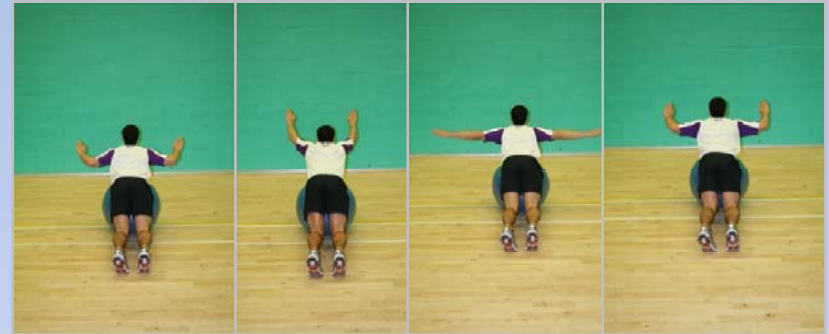
Single leg Good morning



- Stand on one leg holding arms out in front.
- Tip from the pelvis lowering your upper body and squatting on your standing leg.
- Try and touch the floor.
- Keep the back straight.
- Return to start position.

Strength Exercises

W, Y, T, L.



W

Y

T

L

- Lay on top of the ball, placed just above your pelvis.
- Slump over the ball for start position
- Lift up off the ball making your arms into the shape of the letter.
- Return to the ball after each rep.

Strength Exercises

Martian Walk



- Tie theraband around knees.
- Assume ¼ squat position, maintaining upright posture, shoulders back, head up.
- Step sideways, keeping tension in the theraband.
- Ensure your feet do not come together.
- Control leg movement, throughout.
- Try and keep the posture upright.

Strength Exercises

Single Bent-Leg Glute Bridge



Stage 1

Stage 2

Stage 3

- Lay on to your back
- Draw heels in close towards your buttocks.
- Raise hips high and flat, maintaining a straight line from knees through hips to shoulders.
- Keep core tight, breathe throughout exercise
- Progress the exercise by changing the arm position
- Progress through stages 1-3 maintaining stability in pelvis.