

Coaching the Injury Prone Athlete

ENGLAND ATHLETICS
LCDP
LOCAL COACH
DEVELOPMENT PROGRAMME



www.Englandathletics.org

Injury! The Causes?

- ✦ Frequently the ***consequence*** of poor physical preparation (“accidents” excluded)
- ✦ Exceeding training loads the athlete can handle at that time
- ✦ Volume, intensity, density, rate of increase
- ✦ Exceeding movement competences and skills

5 Areas of Injury Risk

- ✧ Hamstring
- ✧ Hip / Groin
- ✧ Foot / Ankle
- ✧ Lower Leg (shin)
- ✧ Lower Back
- ✧ *'11 years research, UKA elite and WCT athletes'*
- ✧ *Across all events*



Prepare the Physical *then* Technical

- ✦ So for example, high knee drill:
 - This needs physical competence to complete the technical movement
 - A need to understand exercise selection to support physical qualities
 - Athletes must have the *physical competence* to do the *technical elements*.....in that order
 - The athlete must earn the physical right to move the programme forwards (Giles, 2004)

High Knee Drill

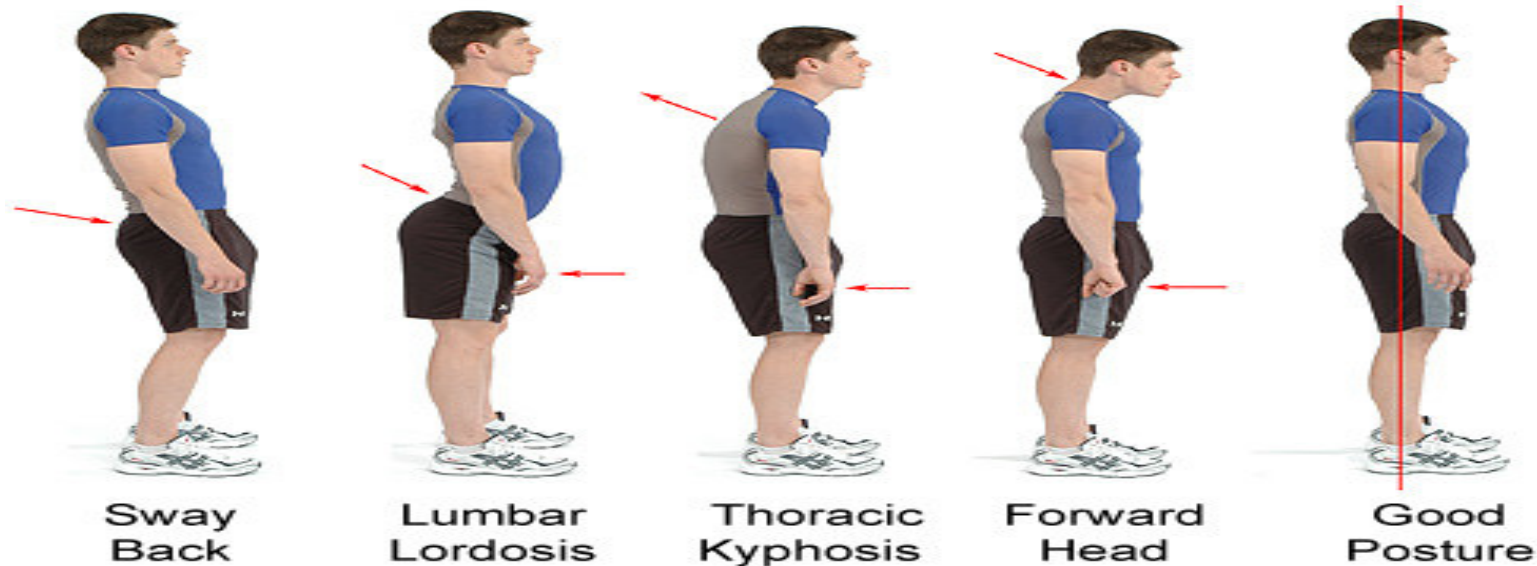
- ✦ Foot cocked, heel to butt, knee high, step over opposite knee, tall hips, extend hips in drive, hips stable, arm swing
- ✦ Needs:
 - Ankle dorsiflexion, hip mobility and knee mobility to step over, sufficient mobility to extend fully at hip not back, stable in a single leg stance, stable shoulder

Critical Areas

- ✦ 'Leg behind – hip extension
- ✦ 'Foot up – dorsiflexion
- ✦ 'Toe Up – big toe
- ✦ Trunk Rotation – movement through all planes
- ✦ Trunk Stability

Challenges of Current Generation

- ✦ Relative inactivity (compared to 30 years ago) even in your athletes
- ✦ More time seated (hips flexed, knees flexed) in flexed position
- ✦ Less time walking/running (extended position)
- ✦ More time at computers, games consoles and phones (neck flexed, shoulders rounded, upper back flexed)
- ✦ ***Basically much more time in activities that don't help athleticism***



Mobility/Stability/Strength

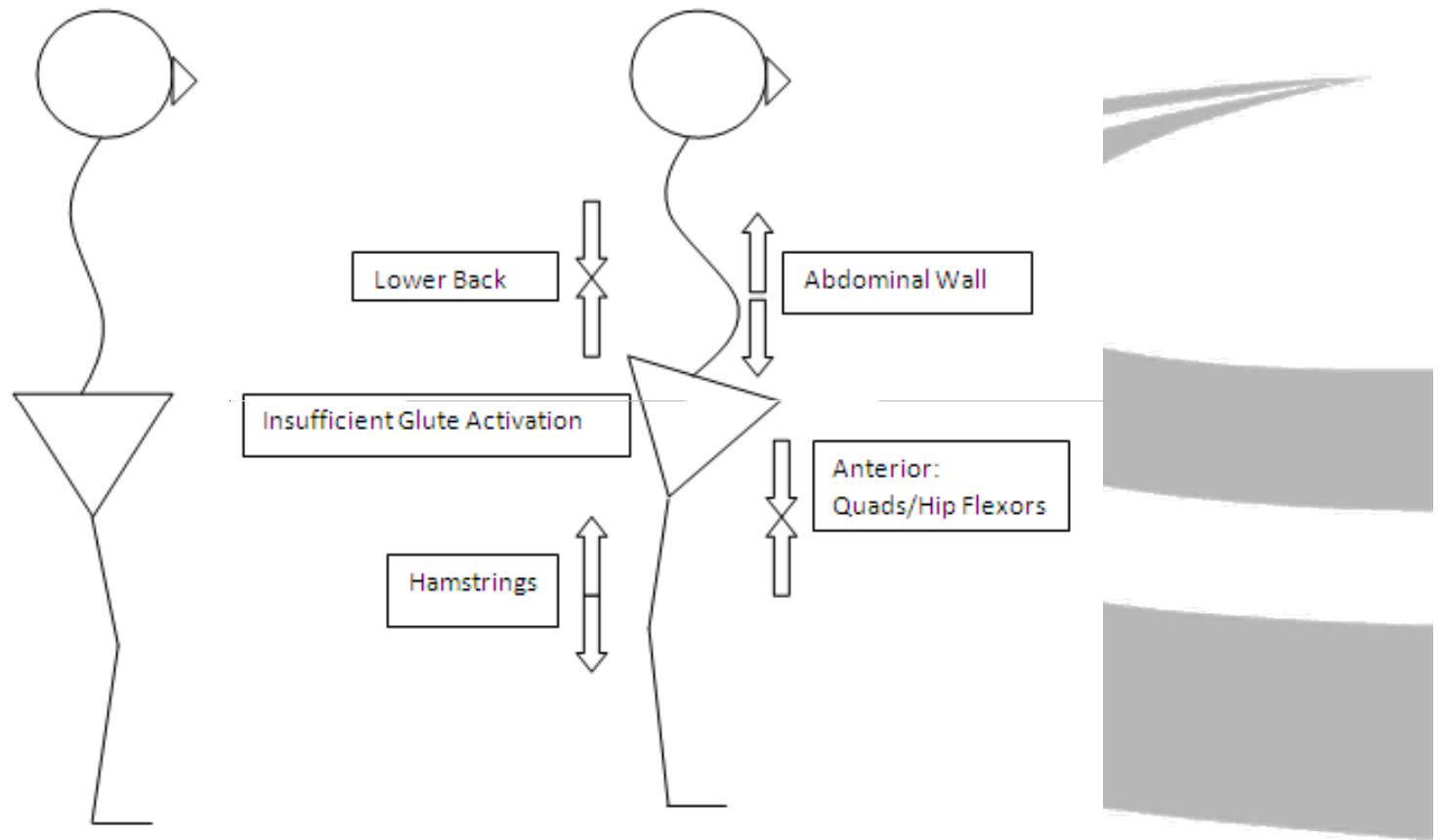
Joint	Primary Training Need
Ankle	Mobility
Knee	Stability
Hip	Mobility
Lumbar Spine	Stability
Thoracic Spine	Mobility
Glene – humeral	Stability

MUST HAVE'S, not 'nice to have's

Assessment and Screening

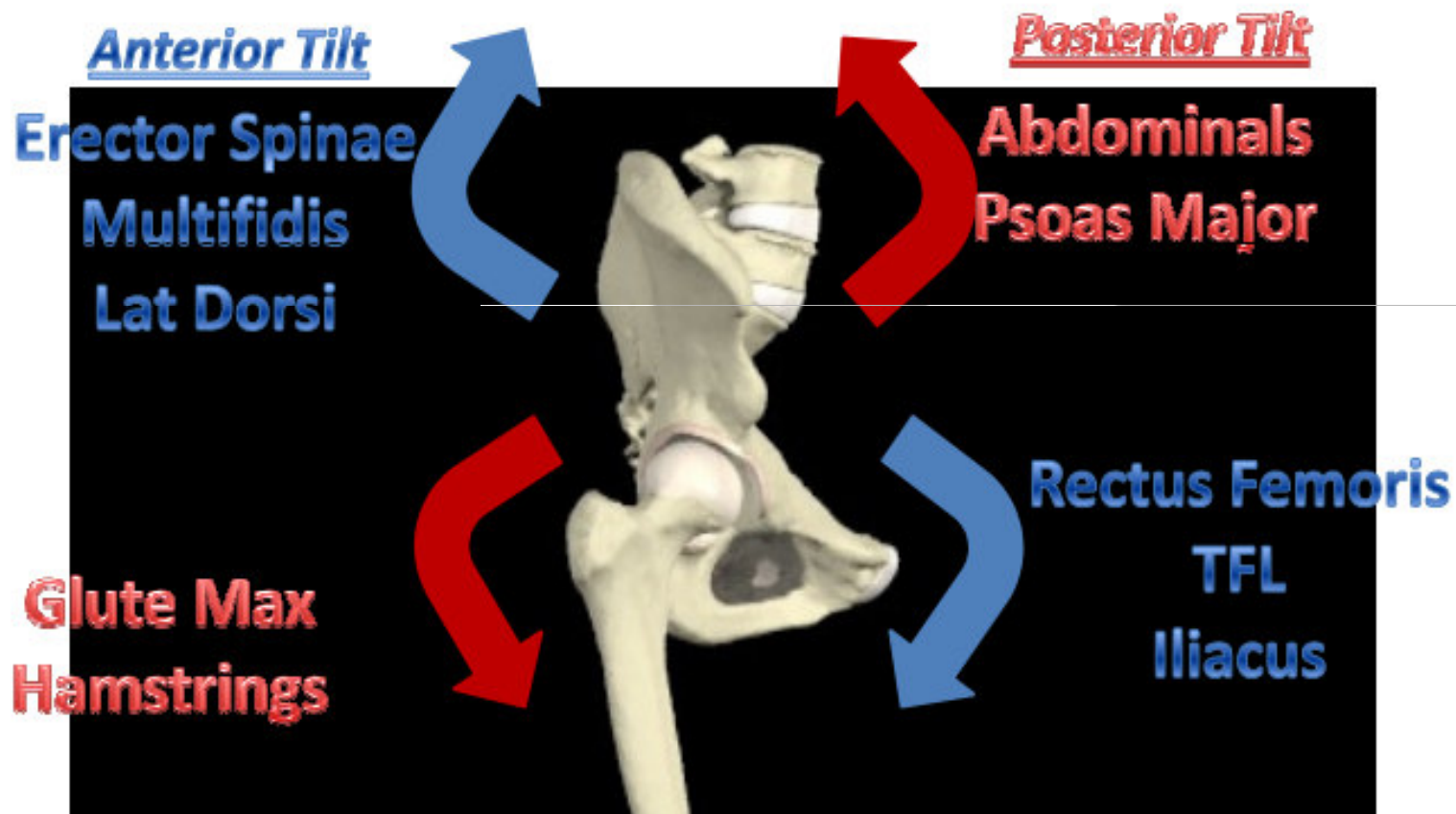
- Short term Problem solving
 - Guide to training interventions for resolving an injury
 - Reduction injury incidence and predisposition
 - Athletes continue to present major physical limitations
- Long term Performance enhancement
 - Explicitly link physical qualities and technical qualities
 - Accelerate technical development
 - Longevity of performance and retention

Anterior Pelvic Tilt



Maintaining Pelvis Position

Newton's 3rd Law – Equal & opposite forces



Potential Issues

- ✧ Lumbar-pelvic complex
 - Anterior pelvic tilt, Lordosis
 - Posterior pelvic tilt – possible kyphosis
 - Tight hip flexors
- ✧ Knees ‘fall in’ – valgus
- ✧ Tight calfs – gastroc and soleus
- ✧ Tight Achilles and plantar fascia

Basic Functional Movement Screening

- ✦ Overhead squat (triple flexion)
 - ✦ Step-over
 - ✦ Forward / backward lunge
 - ✦ Single leg sit to stand (squat)
 - ✦ Supine leg lower (lumbopelvic control)
- ✦ Observe movement and 'shape' – develop coaching eye!
- ✦ Train movement patterns not individual muscles!

Overhead squat - implications

Considers:

Relationships between upper and lower body, specifically triple flexion and extension

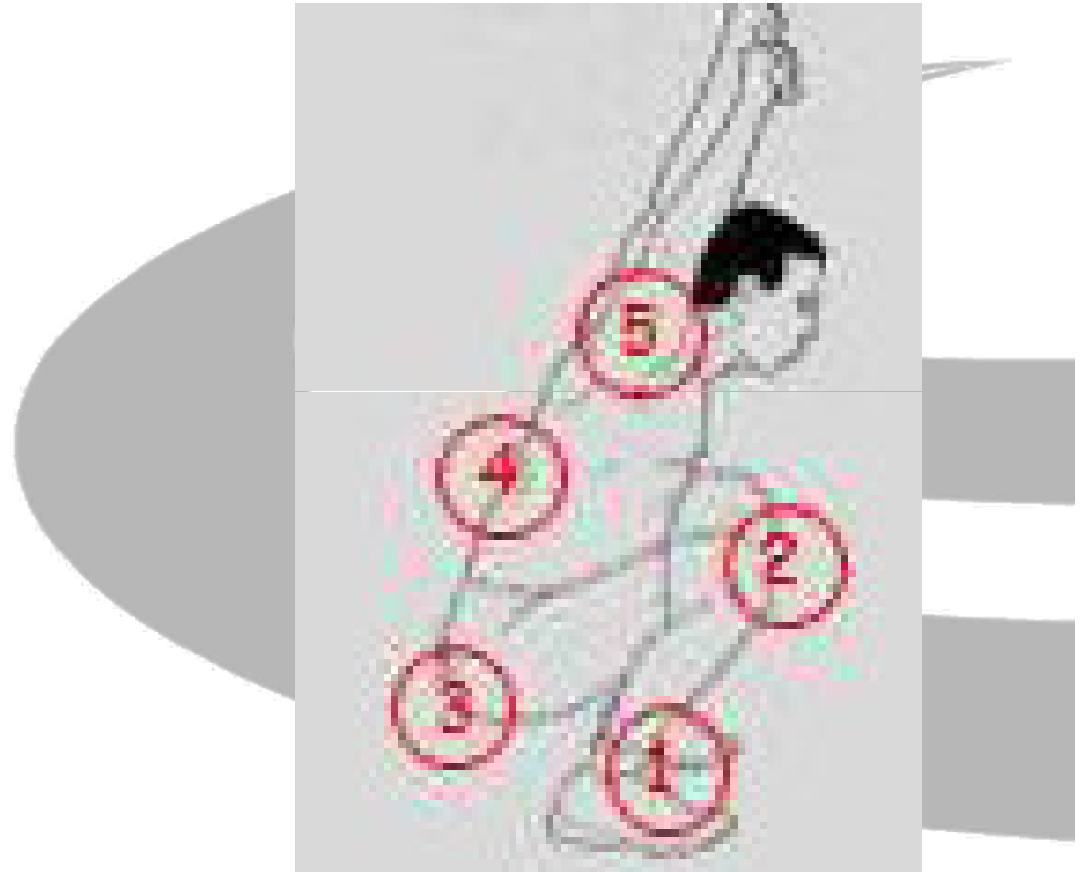
Mobility at ankle hip and upper back

Stability at knee, lumbo-pelvic complex and shoulder

Issues:

Limited mobility in the upper torso can be attributed to poor glenohumeral (5) and/or thoracic spine mobility (4).

Limited mobility in the lower extremity including poor closed-kinetic chain dorsi-flexion of the ankle (1) and/or poor flexion of the hip (3) may also cause poor test performance.



Lunge (forward & backward)

Considers:

Dynamic :

- Lead leg hip, knee and ankle stability and range of movement
- Closed chain hip extension back leg
- Lumbo-pelvic stability
- Trunk stability

Issues:

- Trunk leans forward/back at beginning and end of movement
- Lead leg knee collapses inwards - glutes weak/tight and/or medial arch collapses



Step Over

Considers:

Stance leg hip, knee and ankle stability and range of movement

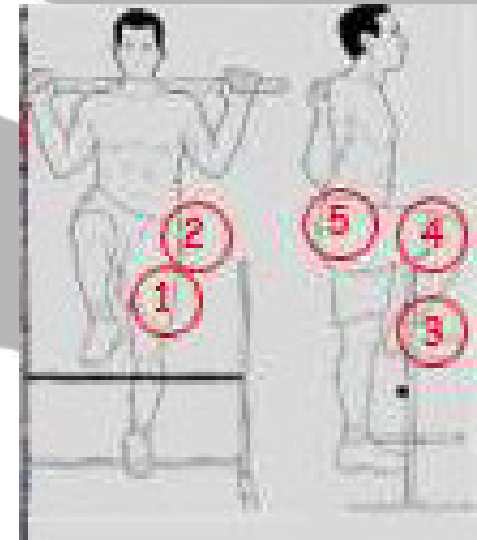
Closed chain hip extension stance leg

Open chain hip, knee and ankle flexion of step leg

Issues

Poor stability of stance leg – weak/tight glutes 2, collapsing arch of the foot, poor range of movement

Poor mobility of step leg 3,4,5 –



Single Leg Squat

Considers:

Stance leg hip, knee and ankle stability and range of movement

Control through the range of movement – eccentric and concentric

Trunk stability and rotational control

Issues:

Poor stability of stance leg – weak/tight gluteals, collapsing arch of the foot, poor range of movement

Poor mobility at hip contributing to excessive trunk flexion

Ankle lifting due to poor mobility at ankle contributing to trunk flexion



Supine Leg Lower

Considers:

Ability to control lumbar and pelvic regions for trunk stability

Lumbar extension/flexion under load

Issues:

Lumbar spine extends under load

Athlete uses other parts of body to brace for control



So, What do we do?

- ✦ Movement, movement, movement
- ✦ Train the chain...
- ✦ Integrate isolation activities in to a 'movement'
- ✦ Agree that excellence is acceptable, don't train mediocrity
- ✦ Build work capacity by repeated doses of excellent movement
- ✦ Use a Cumulative effect over time, this produces sound adaptation
- ✦ Aim for; 'ROBUSTNESS'

Movement Libraries

- ✦ **Squat** progressions
- ✦ **Lunge** progressions
- ✦ **Trunk** stability and bracing progressions
- ✦ **Pushing** progressions
- ✦ **Pulling** progressions
- ✦ ROM – Control – Repetitions, Load
- ✦ **Static to dynamic, Slow to Fast, Simple to complex, unloaded to loaded**

Physical Literacy

- ✧ **Flexibility adapts from day to day.**
- ✧ **Strength adapts from week to week.**
- ✧ **Speed improves from month to month.**
- ✧ **Work Capacity improves, adaptations occur from year to year.**

Our Challenge

- ✦ Ensure movement competence underpins all events
- ✦ Identify excellent training ensures outstanding performance
- ✦ Progress only at a speed that allows the athlete to adapt effectively, don't base on the competition calendar

Thank you for participating



Q's