Getting LJ back on track

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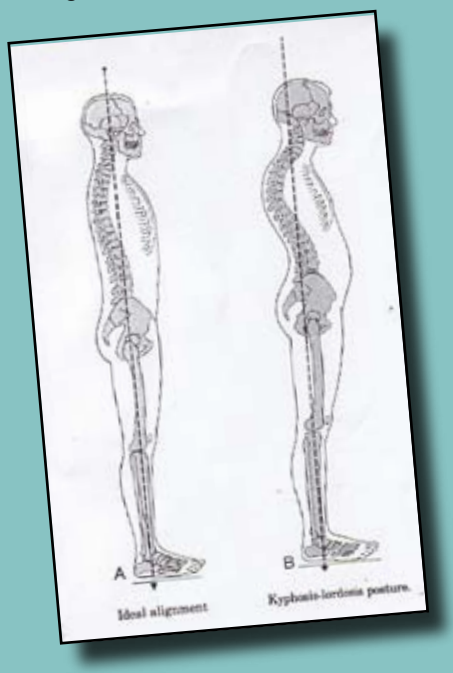
After struggling through a tough competitive 2006, LJ ended up with having to go for surgery to repair a tear in his left external (outside) oblique stomach muscle as it goes into the groin. Because he lost core stability due to the tear he overused his adductors (inside leg muscles) and ended up with a chronic osteitis pubis (inflammation of the pubic bone) and a chronic adductor tendinopathy. LJ travelled so much internationally that there was never sufficient time to correct this long term problem.
The reason for this serious groin problem was a number of biomechanical problems that if corrected earlier could have prevented the surgery.

1.Posture: The kyphotic/lordotic type of posture immediately puts the lower back at risk and interferes with optimal function of the buttock, hip and hamstring muscles



2. Weak buttock muscles (gluteus maximus and medius). Both his back buttock muscles and lateral (side) buttock muscles were weak resulting in too much movement of the hip and pelvis during the hurdle action
3. Weak hip flexors: These are very important muscles that are needed to get the leg up quickly during the hurdle action.
4. Short deep buttock muscles (piriformis): This changed his hip action when going over the hurdles
5. Weak core stability (transvers abdominus): He could not control his hip movement when going over the hurdles

6. Bad technique: Adele du Tiot from the biomechanical analysis lab video LJ`s technique that was far from perfect because of all his biomechanical problems and gave us great insight into the mechanism of the injury.

THE REHABILITATION

1. Initial phase: We started of with controlling the swelling and mobilising the scar, gentle stretches and light core stability work

2. Progression: Week by week LJ was challenged by more dynamic exercises concentrating more on strength, core stability and flexibility

a case study

LJ started with jogging and light hurdle drills on the track 8 weeks after the operation and ran his first 600m straight race recently. He is slowly progressing to running lower hurdles and plyometric drills

Although a variety of injuries occur to the lower limb in any sportsman, it is groin injuries which impede sporting performance the most severely.

The groin is a complex region in the human body, serving as a common point of attachment for multiple muscles as well as a pathway for major nerves and blood vessels which supply the lower limb. Therefore this area is very susceptible to injury.

The musculature of the groin includes the abdominals, hip flexors and hip adductors. Three flat abdominal muscles have attachments via the conjoint tendon to the pelvis. These muscles are of vital importance for core and pelvic stability and include the transverse abdominus, internal and external oblique abdominals. Also attaching to the pelvis are the hip flexors, known as psoas and iliacus, which allow for the bending of the hip. Lastly, the five hip adductors are fan-like muscles which aid in bringing the legs together (adduction). The long adductors, gracilis and adductor magnus, extend from the pelvis to the femur (thigh bone), while the short adductors, pectineus, adductor longus and brevis extend from the pelvis to the knee.

The greatest challenge experienced by an athlete with a groin strain, is to have patience. This is of vital importance because any injury to the human body ultimately leads to biomechanical abnormalities and associated muscular imbalances. This is especially true in the groin. Inadequate rehabilitation leads to chronic pathology, such as a tendinopathy.

Core stability is vital in any sports person, as without it, you lose power, speed and movement, provided by mobility muscles. This is due to the fact that you require a stable base in order to move and if your stability is provided by those muscles made for mobility, your mobility is inhibited. As a result, injuries occur.

Groin injuries are difficult to treat and if not properly rehabilitated often end up in the surgeon's rooms as in LJ`s case. If you have a chronic injury have it properly evaluated and treated as it can become a threat to your sporting career.

References:
1.Brukner P, Khan K, 2001 Clinical Sports Medicine 2nd Edition. McGraw-Hill Companies, Inc.
2.Netter FH, 2003 Atlas of Human Anatomy 3rd Edition. ICON Learning Systems, LLC, a sudsidiary of MediMedia USA, Inc.

Muscle strains	Grade 1	Grade 2	Grade 3
Mechanism of injury	May or may not remember the incident and are able to continue with activity	Remember the incident but may or may not continue with activity.	Remember the incident, but are unable to continue with activity
Pain Onset	After cooling down or the following day	Immediate	Immediate disability
Bruising/ Swelling	Minimal to none	Significant	Severe
Palpation findings	Local muscle spasm and tenderness	Moderate inflammation surrounding a tender palpable lesion	Severe muscle fibre defect
Effect of gentle stretch	Slightly painful	Significant pain	Severe pain
Strength testing	Pain with resisted active contraction of the muscle	Significant pain with unresisted muscle contraction	Severely painful and unable to contract the muscle.

Table 1: Difference in muscle strains