Posterior Thigh Injury & Administration of Sacral Epidural Steroids

Posterior thigh injury is commonplace in track & field

Malliaropoulos et al (2010) found that in a cohort of 165 track & field athletes with acute, first-time, unilateral, unilateral posterior thigh muscle injuries, the range of movement of the affected leg was decreased in comparison with the uninjured side & the control group 48 hours post injury.

- 81% of the athletes had an AROM deficit of <20 degrees - returned to full performance at 2 weeks
- 3.6% of the athletes had an AROM deficit of >30 degrees – recovery exceeded 6 weeks

Of the same group, Malliaropoulos et al (2011) found that whilst the average time to return to sport after initial injury was 7.4 days for grade I injuries & 12.9 days for grade II injuries, grade III injuries took an average of 29.5 days to return & grade IV injuries took 55 days.

Follow-up showed that 13.9% sustained a second hamstring muscle strain but the majority of these were the grade I (9.3% of grade I injuries) & II injuries (24.1% of grade II injuries), with only 2 of the athletes sustaining a grade III injury recurring & none of the grade IV injuries recurring (but these were smaller subject groups).

Sole et al (2011) investigated the EMG activity of gluteal, quadriceps & hamstring muscles during a double – to single-leg activity in 16 subjects following hamstring injury. They found that EMG onsets of biceps femoris & medial hamstrings was significantly earlier in the hamstring injured group compared to the control group (but there was no significant difference in gluteal & quadriceps muscle activation).

Vogt et al (2003) also identified increased hamstring activity in individuals with low back pain & ACL deficiencies.

This earlier activation suggests an alteration in the motor control of these muscles & may also lead to increased cumulative loading increasing the risk of injury

These findings may be linked to the increase in lower limb muscle strains reported by Orchard et al (2010) in a cohort of pace bowlers in cricket with a history of lumbar stress fracture, whilst Kayser et al (2006) noted a link tight hamstring syndrome in children & intra- or extra-spinal tumourous alterations over a 22 year period.

Acknowledging the theory that chronic hamstring pain can be neurogenic in origin, Szalai & Illyes (2005) investigated the therapeutic use of sacral epidural steroid injections in 25 elite athletes, predominantly from track & field. After one, rarely two injections they observed that hamstring pain & discomfort significantly decreased by the time of the follow up, thus indirectly increasing the effectiveness of training sessions whilst reducing the risk of hamstring injury.

Speaking to colleagues & drawing on everyone's clinical experiences in elite sport, whilst the epidurals have enabled an expedited return to training, on occasion athletes have reinjured during races.

This may be due to one or more of the following factors:

- The natural guarding response of the body to protect immature collagen structures is eliminated, thus giving a false perception of tissue healing. Yet when high decelerative forces are produced at newly restored end ranges of movement, the tissue is not organised enough to be able to withstand them & failure occurs
- The neural mechano-sensitivity that caused the decreased range of motion is desensitised following epidural administration, however, normal motor control is not automatically restored. As a result the altered muscle activation patterns persist & the hamstring unit risks failure with the demand for change of function from concentric to eccentric contraction across the two joint muscle.
- The reduced range of motion is suddenly restored following administration of the epidural, however, the joint position sense & range of movement control remains maladapted. As a result the high forces applied at end of range during sprinting cannot be sufficiently controlled & the tissue fails at the weakest point.
- The deficits in eccentric strength, joint proprioception & motor control have not been sufficiently rehabilitated in the rush to return to high level training

Consequently a post-epidural administration programme needs to be implemented to ensure a thorough rehabilitative process is completed & the risk factors for recurrence are addressed.

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