NJD Sports Injury Clinic
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Title:

A 'model' Case Study: a competitive cyclist with extensive soft tissue trauma to the lower limb.

Abstract:

This Case-Study applies an evidence-based approach towards Sports Injury Management of a race cyclist with extensive lower-limb soft tissue trauma – from initial injury through to return to full competition. This approach adopts a sports-specific functional rehabilitation plan designed to take the cyclist through the healing cycle. Also included; patient assessment, clinical SWOT analysis, clinical reasoning, base-line measurements, ongoing assessment, patient education, motivational strategies, evaluation-based progression criteria, all embraced in the scientific principles underlying tissue healing. The article uses over 50 references to support chosen management strategies.

Full article available: - ***sportEX dynamics*** **2008; 17(Jul):11-17**

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Graduate Sports Therapist Nick Dinsdale and his daughter Nicola run NJD Sports Injury Clinic in Clitheroe. The family clinic is recognised for its strong 'evidence-based' approach to the management of musculoskeletal conditions and ongoing personal professional development. This often involves research into topics and issues.

Nick specialises in researching lower limb biomechanics, particularly foot function with respect to cycle racing. In addition to advising professional cyclists, Nick often delivers private workshops and presents at Conferences. Nick has served on the Executive Committee of The Society of Sports Therapists and has worked with GB cycling teams, Manchester Wheelers, English Fell Running teams and assisting Nicola at Blackburn Rugby Union club.

CASE STUDY

Details and images can be found below.

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Name of Patient:	Brian Hickey
DOB – age:	Age: 43 years
Sport:	Competitive Race Cyclist
Level of Activity	Daily training approx 250 miles per week
Condition:	Soft tissue trauma to posterior aspect of right leg (presenting sub-acute)

FIRST VISIT: Condition presenting sub-acute, **10** days post injury. Mechanism of injury - car ran into cyclist from behind. Initial impact was directly above the knee joint. Other injuries included; broken collar bone and concussion. A full examination of limb not possible owing to extent of swelling. Findings -lack of ROM pain on palpation. **Primary objective – minimise swelling and increase joints ROM**

Range of movement (ROM) severely restricted in knee joint (ROM = 30° flexion).

Extensive bruising and swelling on posterior aspect of right leg. Right calf girth increased, measured at 41.5 cm. Left calf = 38 cm. Very tender on light palpation.

Ankle ROM severely restricted. Right (dorsiflexion) <2°. Left ankle ~ 15°. Eversion restricted in right ankle.

SECOND VISIT: Condition presenting sub-acute, **12** days post injury. Slight improvement in ROM of right knee. No improvement in dorsiflexion of right ankle. Full examination still not possible owing to extent of swelling and pain on palpation. Intermittent pneumatic compression unit applied to reduce swelling. **Primary objective – continue to minimise swelling and increase joints ROM**

Bruising still very extensive. ROM of knee flexion improved slightly (ROM = 45 °)

Right calf girth still very swollen and very tender on palpation, measured at 41 cm.

Extensive bruising on medial aspect of right ankle. Dorsiflexion and Eversion still almost non-existent.

THIRD VISIT: Condition presenting sub-acute, **16** days post injury. Further improvement in ROM of right knee. No improvement in dorsiflexion of right ankle. **Primary objective - continue to minimise swelling and increase joints ROM.**

Bruising reducing. Further improvement in ROM of right knee flexion (ROM = 80 °)

Calf remains very swollen, girth remains at 41 cm. Right ankle remains swollen.

No improvement in dorsiflexion, still almost non-existent. Patient still unable to plant foot on ground.

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FOURTH VISIT: Condition presenting sub-acute, **18** days post injury. Further improvement in ROM of right knee, almost restored normal range. Minimal improvement in dorsiflexion of right ankle. Further improvement in eversion of right ankle. Approval recd from GP to massage calf region. **Primary objective - continue to minimise swelling and increase joints ROM.**

Knee flexion almost restored with passive assistance.

Calf remains very swollen, slight reduction in girth, measured at 40.5 cm. Right ankle remains swollen.

Knee extension almost restored. Hamstrings much improved. Longitudinal myofascial release techniques applied, followed by PNF stretching.

FIFTH VISIT: Condition presenting subacute, **22** days post injury. Almost full ROM of knee – both flexion and extension. Dorsiflexion showing slight improvement, patient able to plant foot on ground, but unable to walk. **Primary objective - to restore full ROM of ankle dorsiflexion and flexion / extension of knee.**

Patient now able to plant foot. Zero flexion with foot planted. Rehab exercises prescribed - calf complex stretching.

Finger imprints showing amount of pitted oedema on right shin.

Right calf girth measurement 40.5mm before treatment, reduced to 39mm after treatment.

SEVENTH VISIT: Condition presenting early chronic stage, **29** days post injury. Almost full ROM of knee. Dorsiflexion showing significant improvement, patient able to plant foot on ground, and to walk. Primary objective, continue improving dorsiflexion of ankle. Additionally, improve and restore calf strength and cardiovascular fitness.

Further improvement in passive dorsiflexion of right ankle (approx 10°) using inclinometer. Patient continues performing rehab exercises as per 'Home Rehab Plan'. Exercises include stretching and strengthening using eccentric and concentric techniques. Proprioceptive exercises introduced - balancing on one leg - hard surface.

Patient able to ride his cycle, achieved 50 miles at weekend.

NINTH VISIT: Condition presenting early chronic, **36** days post injury.

Further improvement in passive dorsiflexion of ankle (approx 18°) using inclinometer. Patient continues performing home rehab plan.

Cardiovascular rehab gradually intensifying, achieved 60 miles at weekend with 2 x mid-week roller sessions of 45 minutes.