



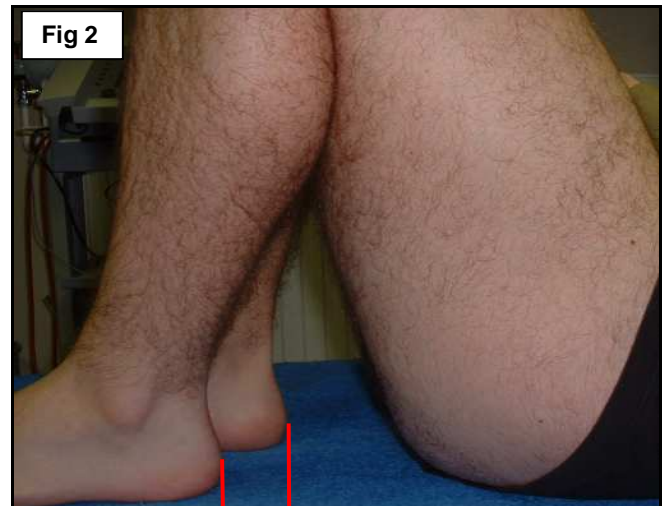
CASE STUDY- For more details contact Nick Dinsdale as above.

Name of Patient:	Male
Age:	19 years old
Sport / Occupation:	Recreational Runner
Level of Activity:	3 – 5 times weekly including gym work
Condition:	Fig.1: Minor Joint Effusion in left knee - Fig.2: Effects on loss in ROM of joint flexion

How a minor joint effusion can restrict (ROM) joint movement – April 2005



Arrows show a minor swelling (effusion) in left knee.



40 mm difference in flexion

Introduction:

The above example highlights how minor inflammatory swellings can restrict joint movement. *Figure 2* clearly demonstrates a 40 mm difference in active knee flexion. The patient was not aware that a difference existed, but complained of joint stiffness.

Whilst swelling exists, the joint will remain somewhat dysfunctional with reduced performance. Additionally, whilst swelling exists, potentially there may still be an unresolved condition / injury. Therefore, even minor swellings and/or a minor loss in ROM is clinically significant, and the condition / causes must be thoroughly investigated. Failure to identify and effectively treat the injury may lead to *chronicity* and *chronic inflammation*.

Chronicity is related to a non-resolved, sub-acute injury. The suggested reasons for this are stress / overuse; the introduction of a new injury on an existing one; and/or inappropriate treatment and rehabilitation. This leads to *chronic inflammation* which is caused by minor repetitive trauma to a non-resolved inflammatory response. To combat this, the body lays down extra tissue collagen, which causes *stiffness*. (1)

Importance of a Thorough Examination & Assessment:

The above photo and observations were recorded during the first visit as part of the initial examination and assessment process. The injury (pain and stiffness) had existed for approximately 6-7 weeks prior to the visit. The patient had continued to train throughout this period. This action had almost certainly provoked the injury, causing further minor but repeated trauma and inflammatory swelling. The condition was considered to be '*chronic*'. The photos highlight the importance of a thorough and comprehensive examination - as the swelling in *Figure 1* is hardly noticeable.

Soft Tissue Injury - inflammatory response:

A soft tissue injury involves damage to cells in tissue structures such as ligaments, muscles, and tendons. Tissue injury usually involves damage to the small blood vessels, causing bleeding which can result in **heat, redness, pain, swelling** and often **loss in function** (limitation of movement). The swelling of inflammation is mostly fluid, called the inflammatory exudate (oedema). The inflammatory swelling is natural; it helps fight infection and promotes healing. (2)

According to Professor Lederman 2005, the inflammatory response can be seen to have two major roles: (3)

1. Protection of the body from infection and clearance of tissue debris from the site of injury.
2. Structural repair processes that take place at the site of damage.

References:

1. Briggs J, 2001: Sports Therapy – Theoretical and practical Thoughts and Considerations. (injury, inflammation, healing and repair)
2. Davies T, 2001: Sportex Health Publication. Issue 10, Oct.2001. The P.R.I.C.E. of healing
3. Lederman Prof. E, 2005: The science and Practice of Manual Therapy. Pages 16 – 17.