

REDUCING INJURY TIME BY APPROPRIATE EARLY MANAGEMENT

ORTHOPAEDIC PRESENTATION



Dear colleagues and interested parties,

This document is part of a series of Orthopaedic Papers drawn from the past 40+ years of medical practice I have enjoyed, primarily focused on the treatment of knee injury and degeneration.

The series includes a mix of conference papers presented over the years, as well as general knee injury management reference documents covering some of the challenges and solutions developed during this time.

We needn't reinvent the wheel too often, so I hope these documents prove useful to my fellow surgeons and those interested in the treatment of knee injury, degeneration, recovery and patient care.

Thank you for taking the time to read these papers, and please do not hesitate to reach out to discuss any of the issues covered further.

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REDUCING INJURY TIME BY APPROPRIATE EARLY MANAGEMENT

REDUCING INJURY TIME BY APPROPRIATE EARLY MANAGEMENT

(UPDATING THE RICE REGIME)

FOOTBALL AUSTRALASIA, MELBOURNE

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Many factors contribute to the time taken following injury to return to sport; and/or work; and to the final degree of functional stability, patient satisfaction; or, conversely, the degree of ongoing disability.

Many problems stemming from the time of injury, and to inappropriate or lack of early management.

The problem we see as orthopaedic surgeons are the patients who suffer an injury three to four days, three to four weeks, or even two to three months prior to seeing us, but have been seen by a doctor or physiotherapist.

The knee is bandaged, braced or splinted, and they are told to rest until seen by the orthopaedic surgeon; with this often continuing, without guidance, even after seeing the surgeon; through until surgery is undertaken or other treatment recommended.

The patients are anxious with quadriceps inhibition and already showing significant quadriceps wasting; not moving the knee, with resulting stiffness; and being worried they will do more damage!

At this stage we need to distinguish between the primary damage or injury; and that of the secondary problems of pain, apprehension and disuse.

There is an expectation in our patients that there is a simple, easy path from injury to surgery; and that all will be "fixed".

Patients have gained the impression from the press; and often reinforced by general practitioner, physiotherapist and surgeons; that if you have an arthroscopy, all will be normal in two to three weeks; or if having a ligament reconstruction, to be better than ever in two or three months.

This is not reality.

Patients often quoting or referring to an AFL footballer who has been in the press; having had ...!! did ...!!; and they expect to do the same, no matter what the injury and circumstances.

The AFL footballers are young, an elite group of sportsmen, shown to have soft tissue capacity to heal; or they would not have reached that level of traumatic sports.

They are physically fit, with trained soft tissues and body awareness.

Experienced in coping with pain associated with injury and surgery;

But in reality are human, and with many having ongoing problems; or failing to perform to their previous levels.

But what about the vast majority of our patients, who may be;

Less adequately trained, past their prime, lacking muscle strength, co-ordination, body awareness, and motivation to overcome problems; or are third party, worker's compensation; or are overweight; or combinations of.

Or young and just anxious, with their first significant injury.

The principles of treatment of the knee injury, will be the same, but the materials; that is, the protoplasm, is different;

With a greater likelihood of problems.

Significant advances have been made in relation to the arthroscopic and technical aspect of knee surgery; provided the surgeon (and his team) are fastidious and caring.

But probably the most significant advance in the last two to three decades relates to the development of the "accelerated rehabilitation" as pioneered by Dr Don Shelbourne.

But this is not something that starts after the surgery; but is totally dependent on; early post-injury and pre-operative preparation;

Along with the selection and timing of a "single appropriate" surgical procedure.

The aim of this paper is to emphasise that:

(a) Defining the pathology is vital; by a careful history, examination and need for good quality plain x-rays (to eliminate fractures); and then good quality MRI studies (defining possible ACL/PCL/patellofemoral/meniscus/chondral injury).

But not just focussing on the damaged tissues in the knee, but also;

(b) To consider any associated intra and peri-articular haemorrhage.

(c) Following any injury (in this clinical setting related to soft tissue injuries of the knee) it is important to assess "the person as a whole";

And the "individual response" to this pathology/injury.

It is this "response" to the injury and associated haemorrhage; often more so than the injury itself; that will determine the long-term outcome.

The injury affects, not only the knee, but also the muscles; mental state; and the family, work or study commitments.

The initial response to injury and haemorrhage is that of;

Pain, anxiety, quadriceps inhibition, limited movement and disability.

The knee acts like it is filled with irritating glue.

This, coupled with the individual's biological repair response of variable inflammatory and fibrous reactions; Requires recognition; so as to prepare the patient for the definitive treatment.

This preparation is essentially the same, for all soft tissue injuries of the knee (having eliminated fractures by appropriate early x-rays).

It aims to reduce the secondary problems by early mobilisation and a positive approach to pain and anxiety.

It is not appropriate to instruct a patient to REST, ICE, COMPRESSION, and ELEVATE THE LEG;

Until seen by the specialist (this certainly needs to be initiated early);

But this, when literally carried out, can potentiate the problems of pain, anxiety, quadriceps inhibition, stiffness, and on occasions leading to development of deep vein thrombosis/DVTs/blood clots.

It is important that following instructing the patients in the RICE regime, to also instruct them to **remove** the restrictive bandages or brace, particularly when resting; but continue intermittent ice packs while they have swelling and/or pain.

INITIATE "**quadriceps setting exercises**"

By noting proximal patellar movement, and if necessary using "muscle stims and biofeedback"; from the physiotherapist.

Quadriceps contraction may be assisted initially by using a small rolled towel under the knee, at approximately 10° to 20° of flexion; gently pushing into the rolled towel and noting the kneecap movement. This can also be attempted in the standing position, and attempting to lift that leg/limb forward and remaining as straight as possible.

This is a vital step to gain quadriceps function; and is often the key to success or failure.

Encouraging a gentle but progressive range of movement, actively and passively;
Both into extension (always important) and flexion; by not being afraid to take to a tight stretching sensation, then easing off.

Progressing weight bearing between crutches; using crutches to assist with mobility; initially with minimal weight, but to "shadow walk"; then progressively increasing weight as one gains muscle function with reduced pain.

This leading into gaining a more normal walking pattern, with graduated increased weight bearing; rather than discarding one or two crutches, but having a more marked limp.

In this way educating and reassuring the patient that they are not damaging or stretching injured structures; as they are so often worried or scared to "do anything" for fear of doing more damage; but this motion, muscle function and part weight bearing aiding in lubricating the articular surfaces and preventing excessive muscle wasting.

This is the key to preventing secondary stiffness and consequent secondary patellofemoral problems.

We need to remember that the knee is "**never too swollen and too painful to examine**".

The examination should basically confirm what we suspect from a careful history, and lead us to appropriate radiological studies (good quality x-rays +/- MRIs).

The big painful knee is rarely a surgical emergency; having checked for and eliminated significant fractures; vascular or neurological injuries; and assessed complex lateral structures.

This "**irritable knee**" – needs to be recognised;

With the initial treatment of all soft tissue injuries of the knee; being reassured and instructed to begin quadriceps setting and to move the knee.

When the joint has lost its "irritability"; – only then should the definitive treatment of the primary pathology be undertaken.

This being either –

1. A non-operative conservative program; this does not mean "**no or inadequate**" treatment; but being a structured and reviewed regime.
2. Possibly an arthroscopy.
3. Or the need for ligamentous repair/reconstruction/stabilisation.

Such ligament surgery is generally purely "**elective surgery**"; when the patient and knee is adequately prepared.

This will vary from patient to patient depending on their tissue response.

This being as early as two or three days, or may be delayed for two or three months; or may not be indicated or appropriate at all.

It is only when the patients "**come to grips**" with the problem, particularly when considering ligament or patellofemoral surgery;

Surgery that is inappropriate with its type; timing; or with inadequate or inappropriate preparation; can lead to "a disaster";

With complications and prolonged periods away from football, other sports and work activities.

Not all knee injuries require arthroscopy, and not all patellar instabilities or cruciate ligament injuries require stabilisation/reconstruction.

But, if indicated –

The operation is important to set up a mechanically sound environment for "tissue repair";

Being aware that the body cannot regenerate or regrow damaged or injured structures; but with appropriate management, we may see "**functional adaptation**" and a stable knee.

With the accelerated rehabilitation commencing from the time of injury; and not from the time of surgery.

It is dependent on **pre-operative preparation**; with greater likelihood of gaining as best possible results; if having quadriceps contraction with visible proximal patellar movement; ability to perform a straight leg raise without lag; with range of movement of neutral, or very close to full extension of the knee, through to over 90° of knee flexion; and weight bearing/gaining a walking pattern.

Patient selection; relative to psycho-emotional and pain factors, realistic expectations; particularly related to age, pathology and athleticism or obesity.

And

Timing of appropriate surgery;

And then followed by;

Appropriate guided rehabilitation; with rhythmic, step-by-step progression; dependent on joint pain and irritability.

Please visit <https://www.ianmclean.com.au/> for further information and links to reputable online orthopaedic resources.

NOTE: No warranty, liability or responsibility can be claimed whatsoever in relation to the information provided, its use or application. Any information, advice or recommendations must be considered in accordance with, and conducted under, expert medical supervision.