# ORTHOSPORTS



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in Sydney.

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LOCATIONS

#### Welcome to the Winter edition of Orthosports News.

Dr John Negrine's article on Ankle Sprains discusses simplifying diagnosis, with some thought provoking facts on diagnostic imaging. Following the Foot & Ankle theme, Dr Todd Gothelf reviews the available imaging options for the foot and ankle.

The management of Acute Rotator Cuff Tears is discussed in Dr Todd Gothelf's article on page 2.

We welcome Dr David Lieu to the Concord Practice. Dr Lieu specialises in Knee, Shoulder and Elbow surgery.

We hope you enjoy this issue - The Team at Orthosports

## Simplifying Ankle Sprain

In Sydney every day approximately 450 people sprain their ankles.



A patient with a "complete full thickness tear of the anterior talo-fibular ligament" has a **sprained ankle** readily diagnosed clinically by talking to the patient and examining them.

The Ottawa rules (1992) state that most patients don't even need an x-ray. Why then do patients regularly arrive at your office and mine with an xray, an ultrasound and an MRI that shows "a complete full thickness tear of the anterior talo-fibular ligament" (sprained ankle).

The growth in diagnostic imaging is unsustainable. In 2013/14 we spent \$3 billion dollars on diagnostic imaging, up 8% on the previous year. MRI increased by 30% in the last 12 months and accounted for \$320 million dollars of this spend. I propose that many of these foot and ankle MRI scans were unnecessary and do not alter patient outcomes.

**History:** The patient will describe an inversion injury where they heard a snap or pop. They may be able to weight-bear initially but invariably the ankle will swell.

**Examination:** The patient often cannot weight bear so a walking examination is not possible. Orthopaedics is simple and the signs readily elicited: *Look, Feel, Move, X-ray*.

**Look:** Where is the swelling and bruising? Most ankle sprains swell laterally and many medially. Most bruising is lateral beneath the lateral malleolus. Bruising in the proximal leg may indicate a syndesmotic injury or "high ankle sprain".

**Feel:** Where are they tender? In front of the fibula most commonly, though in 25% of ankle sprains the medial malleolus impacts the medial wall of the talus causing pain on the medial side. Are they tender at the base of 5th metatarsal? Are they tender more proximally in the leg?

**Move:** Gently now!! Does the ankle move up and down? Is the subtalar joint mobile?

**X-ray:** In general, err on the side of taking a plain x-ray (AP, lateral and 15° internal rotation oblique view). Sydney in 2016 has many more voracious lawyers than Ottawa did in 1992!

**Treatment:** You all know RICE. The vast majority of lateral ligament injuries do

not need surgery, do not cause arthritis and are an inconvenience rather than being dangerous. Physiotherapists are good at treating ankle injuries and failure to improve after 6 weeks, despite good physiotherapy, may be an indication for further investigation.

The objectives of treatment are to acutely relieve pain (5 days on crutches is standard treatment).

An ankle splint that allows movement is more effective than an immobilisation plaster or boot after the first 5 days. Allowing protected movement decreases joint stiffness, decreases the chance of DVT, decreases muscle wasting, lessens the chance of a pain syndrome and does not compromise ligament healing.

After 2 weeks a physiotherapy program concentrating on balancing and strengthening exercises is often helpful to prevent re-injury. I often suggest sports people tape their ankle or use an ankle brace on their return to sport usually at 4 – 6 weeks.

Dr John Negrine



### The Acute Rotator Cuff Tear

Rotator Cuff tears can be either acute or chronic in nature. More common is a chronic tear, which occurs by attrition of the rotator cuff tendon over time.

The tendon degenerates and eventually tears with a gradual onset of pain. On the contrary, an acute tear is one that occurs abruptly. Patients with an acute tear usually recall a particular injury, such as falling on the arm, or heavy lifting and the shoulder giving way. Patients usually have no symptoms prior to the inciting trauma. The injury may result in a considerable amount of pain and change in function. Tears are usually larger in nature than with chronic tears. The acute loss of function and large size of these tears make early diagnosis particularly important so that prompt treatment can be administered.

#### **CLINICAL SIGNS:**

Patients with acute rotator cuff tears are generally younger in age, on average in their 50s. The history of a traumatic event leading to pain and change in function gives clues to this diagnosis.

#### PHYSICAL EXAMINATION:

Loss of ACTIVE overhead motion is a common sign for an acute rotator cuff tear. Passive overhead motion is usually normal. Patients will usually have positive impingement signs and weakness with rotator cuff strength testing.



A right shoulder acute rotator cuff tear. The patient cannot actively lift his arm overhead.

#### **INVESTIGATIONS:**

X-rays should always be ordered initially to rule out fracture or dislocation of the shoulder but are usually normal. An urgent MR arthrogram should be ordered to assess the rotator cuff for an acute tear. An ultrasound does not contribute to surgical decision-making and is therefore not a useful test to order.



Above: MR arthrogram of a complete full thickness supraspinatus tear. Right: X-rays are usually normal.

#### TREATMENT:

Surgery is usually indicated in most cases of an acute, full thickness rotator cuff tear. It is ideal to operate within 3 months of the injury. Most of these patients previously had 'normal' function, and



are young and active. The goal of surgery is to restore the attachment of the rotator cuff so that the muscle/tendon function is preserved. Without urgent surgery, the tear will remain, resulting in atrophy of the rotator cuff muscle and permanent irreversible change. Delayed repair will be more difficult due to retraction of the tendon. Even large or massive tears of the rotator cuff in the acute setting should be repaired. Often these large tears are easily repaired acutely as they are flexible early on and can be

reattached to their original position with little tension on the repair.

#### **CONCLUSION:**

Acute rotator cuff tears can be large tears and can result in considerable change in function in young patients. Early recognition of these tears is crucial to ensure early surgical treatment and better outcomes.

Dr Todd Gothelf





#### IMAGING OF THE FOOT AND ANKLE

#### Part I: Plain Radiographs

Plain radiographs are important to obtain during the diagnostic work-up of almost all conditions of the foot and ankle. Even when the presumptive diagnosis may be soft tissue related, such as a lesion or neuroma, x-rays help to rule out conditions such as joint destruction, stress fractures, lesions eroding bone. Order WEIGHTBEARING or STANDING radiographs of the foot or ankle when possible. The purpose of this is to assess the alignment of the bones, which may also give clues to a diagnosis.

The views asked for when requesting a STANDING foot xray are an AP, lateral, and oblique. The standing x-rays for an ankle are also AP, lateral, and oblique.

#### Part II: MRI

MRI is excellent to look at soft tissue structures as well as stress fractures within bones that cannot be seen on plain radiographs. MRI can identify neuromas, ligamentous injury, tendinopathy, arthritis, cartilage lesions in a joint, and all tumourous lesions. MRI is a LOCALISED test, so it is better if pain or deformity is limited to either the forefoot, midfoot, hindfoot, or ankle. When ordering



MRI demonstrating Achilles tendinosis, and normal bony anatomy, no joint arthritis.



This MRI demonstrates peroneal tendinopathy.

an MRI, I specify great toe, central forefoot (to look at the lessor toes), midfoot, hindfoot, or ankle. An MRI of the foot and ankle is a specialized test, and it is recommended to request for a musculoskeletal radiologist to read the results for greater accuracy.



MRI demonstrating a stress fracture of the 2nd metatarsal.

#### Part III: Bone Scan

A bone scan is helpful when considering diagnoses of bony pathology. For example, if a stress fracture is suspected when an x-ray looks normal, a bone scan can demonstrate a stress fracture. A bone scan is advantageous when painful areas are NOT localised to one area, as a bone scan assesses the entire skeleton. Soft tissue lesions will not be evident on a bone scan.



AP x-ray demonstrating Freiberg's infraction at the 3rd MTP joint. Patient had 3rd MTP joint pain.

#### Part IV: CT scan

A simple x-ray should be the first test ordered to look for fractures before a CT scan. A CT scan identifies BONE detail well, but is not the best test for soft tissue pathology. When evaluating an ankle after injury, for instance, an MRI would be more helpful than a CT scan as it will help to identify bone bruises, cartilage injury, peroneal tendon tears, or occult fractures just as well. A CT scan is a significant dose of radiation, and therefore should only be ordered for specific purposes.



CT scan image of a comminuted calcaneus fracture. CT gives the best detail of fractures.

#### Part V: Ultrasound

Ultrasound can be very useful to look for soft tissue lesions around the foot and ankle. The two main benefits of ultrasound over MRI are: 1) cortisone injections can be ordered at the same time if pathology is found, as with neuromas of the forefoot; and 2) it is a dynamic study, so can demonstrate a problem with movement, such as snapping peroneal tendons or tendon tears.

Dr Todd Gothelf

#### Orthopaedic Surgeons and their Interests

#### CONCORD

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Dr Todd Gothelf	Foot & Ankle, Shoulder
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Dr John Negrine	Foot & Ankle (Adult)
Dr Rodney Pattinson	Paediatrics and General Orthopaedics
Dr Doron Sher	Knee, Shoulder and Elbow
Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics

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Dr Ivan Popoff	Shoulder, Knee and Elbow
Dr Doron Sher	Knee, Shoulder and Elbow

#### Sport & Exercise Medicine Physicians

Dr Paul Annett	Hurstville
Dr John Best	Randwick
Dr Mel Cusi	Concord   Hurstville   Randwick Penrith

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Knee Sports Injuries (NEW) – 40 Category 1 CPD Points Concord: Tuesday, 18th October Shoulder Pain & Injury Management – 40 Category 1 CPD Points Penrith: Tuesday, 16th August



#### \* \* Final workshops for the triennium \* \*

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"I was very impressed by both the online and face to face components and found it very useful in updating my knowledge."

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