ORTHOSPORTS NEWS

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Welcome to our Winter edition of Orthosports News

Drs Ivan Popoff and Doron Sher discuss ACL reconstruction and Dr Todd Gothelf takes a closer look at the Lisfranc midfoot sprain.

Dr Kwan Yeoh commences Part 1 of the Hand and Wrist Examination Series.

We hope you enjoy this issue – The Team at Orthosports

AOA
AUSTRALIAN ORTHOPAEDIC ASSOCIATION

WHO ARE WE?

Orthosports is a professional association of Orthopaedic Surgeons based in Sydney.

ORTHOSPORTS LOCATIONS

- Concord 02 9744 2666
- Hurstville 02 9580 6066
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Do I need an ACL reconstruction?

Winter sports in Sydney bring with them an increased incidence of ACL injuries because side stepping sports such as netball, soccer and football place great strain on the knees. Once the patient has injured their ACL they need to decide whether or not to have a surgical reconstruction. This article outlines the major points to be considered when assessing treatment options.

CAN I RETURN TO NORMAL ACTIVITY WITH NON-OPERATIVE TREATMENT?

Unfortunately the vast majority of patients require an ACL reconstruction to return to side stepping sports.

Noyes et al performed a very large study of patients with ACL tears who were treated without surgery. After appropriate rehabilitation the patients were seen to fall into 3 equal groups:

1. One third had problems with everyday activities
2. One third managed well with modification of activities (i.e. avoidance of pivoting activities)
3. One third could return to some level of recreational sporting activity

Of the third that could return to recreational sport, only around a third of those (9% of total) could get back to competitive sport. On closer questioning the majority of these patients reported that their injured knee was not normal.

The vast majority of patients (90%) require an ACL reconstruction to return to competitive sports and around two thirds will require surgery to return to recreational side stepping activities.

If a patient does not wish to participate in competitive sports or recreational pivoting activities they may do well without surgery.

PREVENTION OF OSTEOARTHRITIS

When the ACL tears, the knee subluxes, leading to large amounts of force being transferred to the articular cartilage, resulting in both microscopic and on occasion macroscopic damage. The glycosaminoglycan content of the articular cartilage can take 2 years to return to normal after an ACL tear.

It is doubtful that an ACL reconstruction prevents the development of osteoarthritis. At 15 years post injury 50% of ACL deficient knees will have radiological evidence of osteoarthritis regardless of treatment. The coexistence of a meniscal tear is a poor prognostic indicator.

If the knee is unstable and the patient experiences repeated giving way episodes they are more likely to tear their meniscus. They can also injure their articular cartilage directly. The medial and lateral menisci bear around 30 and 70% of the load in the medial and lateral compartments respectively. This loss of shock absorption leads to damage to this structure and arthritis of the knee.

AGE AND THE ACL DEFICIENT KNEE

A patient who has symptomatic instability from an ACL deficient knee, which interferes with or prevents their participation in their desired activities, should consider an ACL reconstruction regardless of their age.

The functional requirements of the older patient has increased dramatically in recent years. Many patients wish to keep active for as long as possible and even play team sports into their fifties. The benefits of remaining active are obvious, but confidence in the stability of the knee is paramount to continuing with physical activity.

KEY POINTS

- The majority of patients wishing to return to competitive sport or recreational pivoting activities will require ACL reconstruction.
- At 15 years post injury 50% of ACL deficient knees will have radiological evidence of osteoarthritis regardless of treatment.
- The need for an ACL reconstruction is determined by the functional requirements of the patient rather then the patient's age.

Dr Ivan Popoff & Dr Doron Sher

The Lisfranc midfoot sprain

A midfoot sprain may seem to be a minor sprain, but potentially can be a devastating injury for an athlete. It is often assumed that the pain and swelling will subside in a few weeks, and they can then resume play. However, with a Lisfranc injury, they will experience pain with increased activity and may even be unable to run for several months or longer. With an unstable injury, failure to recognise and treat appropriately may lead to the development of early midfoot arthritis.

A Lisfranc injury represents a disruption of ligaments that connect the metatarsals to the cuneiforms in the midfoot. These injuries are commonly over-looked as they are difficult to detect with plain radiographs. Studies have shown that up to 40% of Lisfranc injuries are missed with standard radiographs of the foot. Furthermore, a failure to recognize and treat a displaced midfoot sprain can result in a 70% chance of a poor outcome. Early treatment and anatomic reduction has resulted in 95% of patients having excellent outcomes.

The tarsometatarsal joints fit together in a tight-fitting way to provide inherent structure to the midfoot. The anatomic fit of the metatarsals with the cuneiforms and cuboid forms the rigid and stable arch of the foot (figure 1). The strongest ligaments holding this structure together are the plantar ligaments. The second oblique ligament connects the medial cuneiform to the second metatarsal, and is the primary stabilizer of the Lisfranc joint complex. This ligament is the one most commonly ruptured to allow widening of the complex at the 1-2 interspace.

A severe midfoot sprain is usually the result of a direct blow from a major injury. These more severe injuries usually reveal obvious soft tissue injury and displacement of bones or fractures on x-rays. A Lisfranc sprain can also occur from a lower energy insult, such as a twisting of the ankle or foot, or extreme plantar flexion. A rugby player may get his foot caught in a tackle resulting in this more indirect type injury.

Subtle fracture-dislocations or sprains without persistent subluxation can be easily missed. Any pain and swelling over the midfoot, especially between the base of the first and second metatarsals, should prompt evaluation for a Lisfranc injury. Stress of this area using a pronation-abduction manoeuvre may elicit pain and indicate the need for further work-up.

Up to 40% of plain radiographs may miss a Lisfranc injury, therefore other studies are needed to help identify the injury. It is usually clearly seen on MRI scanning but a weight-bearing radiograph of the affected and opposite side can help detect this subtle injury (Figure 2). Any displacement of the metatarsals, even 1mm, represents an unstable injury and the need for treatment. If a weight-bearing radiograph looks equivocal but there is high suspicion, then examination under anaesthesia is warranted to assess for stability. MRI and CT scan are helpful for a type III Lisfranc injury, but as they are non-weight bearing may not pick up all type II Lisfranc injuries. (Figure 3)

From left:

Figure 1: Note the normal relationship between the base of 2nd metatarsal and medial cuneiform

Figure 2: Note the widening between the base of second metatarsal and medial cuneiform. This represents an unstable Lisfranc sprain

Figure 3: MRI of a ruptured Lisfranc ligament complex. Note oedema at the base of second metatarsal.

A stable Lisfranc sprain, as determined by a negative weight bearing view or negative stress test under general anaesthetic, are treated with a below knee walking boot for six weeks.

Any Lisfranc injury demonstrating instability or subluxation is treated with an open reduction and internal fixation. Internal fixation with screws and plates are used to provide stability until the ligaments scar and heal. (Figure 4) Hardware is removed at six months to allow some flexibility to the joints.

Figure 4: Reduction and Fixation of a Lisfranc Injury

In patients with missed or late Lisfranc injuries with pain, initial treatment with a rigid arch support orthotic can help to reduce pain. Patients with persistent pain or who develop arthritis of the midfoot are successfully treated with a midfoot fusion.

In summary:

1. A proper vigilance should be held for patients with ankle or foot sprains, so that a Lisfranc sprain is not missed.
2. Prompt work-up with weight bearing radiographs and opposite comparison views is essential to rule out a Lisfranc sprain.
3. If Instability is present or there is high suspicion, examination under anaesthesia is essential, with open reduction internal fixation for an unstable injury.

Dr Todd Gothelf

KEY EXAMINATION POINTS

Hand and wrist examination Part 1

The basic hand and wrist examination follows the usual pattern of Look, Feel, Move. However, the number of bones and joints involved make the examination much more complex. Because of the diversity of possible specific examination tests available, it is impractical to perform all tests for every patient. One must therefore have an idea of the likely and possible diagnoses prior to beginning the examination. Therefore, the most important part of the hand examination is the history taking that precedes it.

In this part of the hand and wrist examination series, we will look at the basic components of Look. Future instalments will detail the Feel and Move portions, focusing on examination for specific differential diagnoses.

LOOK

Proper exposure is critical. Ensure that the entire upper limb is exposed from above the elbow to fingers. If a neurological condition is suspected, then the upper body must be disrobed to assess the nerves of the shoulder girdle muscles.

Comparing one limb with the contralateral side, check the shoulder and elbow briefly for range of motion and for muscle wasting. Note any relevant scarring or deformity.

When inspecting the hand and wrist, keep both hands near to each other to compare the affected side to the contralateral side. I prefer to have the patient hold their hands in the air directly in front of them, rather than resting on a pillow. This allows muscle weakness to show up more clearly, rather than being masked by the support of the pillow.

Look at the overall position of the fingers. The thumb CMC may be held more adducted compared to the other hand, indicating a base of thumb arthritis. MCP subluxation may result from rheumatological conditions. The fingers may show a swan neck or Boutonniere deformity. Drooping of the fingers may signal a flexor or extensor tendon injury.

Look for muscle wasting, particularly of the thenar eminence, hypothenar eminence & 1st dorsal interosseous muscle (on the radial side of the 2nd metacarpal bone). Generalised muscle wasting may indicate disuse, but specific wasting of one particular muscle group may indicate a severe nerve compression, such as carpal or cubital tunnel syndrome, which should be referred for early surgical intervention.

Look for lumps and bumps. Ganglia are very common localised soft tissue swellings around the wrist. Arthritis at the interphalangeal joints may present as “swollen joints”, which are usually osteophytes rather than swelling of the joint itself. Tight lumpy bands in the palm may represent Dupuytren’s disease.

Ensure that each finger makes a full fist, with the tips of the finger coming into contact with the distal palmar crease. If a restriction in range of motion is detected, document the actual range of motion of each joint in that finger. As the fingers flex, the natural position should be for the fingers to point towards the scaphoid. Make note if one or more fingers do not do so.

Compare active and passive range of motion (ROM) by asking the patient to flex or extend a joint as far as they can (active movement), and then helping them to flex/extend even further (passive movement), taking care not to cause undue pain. A discrepancy between active and passive ranges of motion may indicate a problem with motor weakness or with restriction due to pain, rather than a restriction due to joint pathology itself. ROM testing of the wrist should include flexion, extension, radial deviation, ulnar deviation, pronation and supination. ROM testing of the fingers should include the MCP and each IP joint.

Dr Kwan Yeoh

1. Inspect the dorsal aspects of the hand, comparing it with the contralateral side

2. Compare the radial sides of each hand. Thenar wasting is best seen in this position, suggestive of carpal tunnel syndrome

3. Compare the ulnar sides of each hand. Wasting of the hypothenar eminence is most easily seen in this position

4. Inspect the palmar sides of each hand

5. Ensure each finger flexes completely

6. Each finger should flex and point towards the scaphoid

Orthopaedic Surgeons and their Interests

LOCATION	SURGEON	SPECIALTY
CONCORD 47-49 Burwood Road Concord NSW 2137 Tel: 02 9744 2666	Dr Todd Gothelf	Foot & Ankle, Shoulder
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	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
HURSTVILLE Medica Centre 29-31 Dora Street Hurstville NSW 2220 Tel: 02 9580 6066	Dr Jerome Goldberg	Shoulder
	Dr Todd Gothelf	Foot & Ankle, Shoulder
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Andreas Loefler	Spine, Trauma, Hip and Knee
	Dr John Negrine	Foot & Ankle (Adult)
	Dr Rodney Pattinson	Paediatrics and General Orthopaedics
	Dr Ivan Popoff	Shoulder, Knee and Elbow
	Dr Allen Turnbull	Hip and Knee
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics
PENRITH Suite 5B, 119-121 Letherbridge Street, Penrith NSW 2750 Tel: 02 4721 7799	Dr Todd Gothelf	Foot & Ankle, Shoulder
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics
RANDWICK 160 Belmore Road Randwick NSW 2031 Tel: 02 9399 5333	Dr Jerome Goldberg	Shoulder
	Dr Todd Gothelf	Foot & Ankle, Shoulder
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Andreas Loefler	Spine, Trauma, Hip and Knee
	Dr John Negrine	Foot & Ankle (Adult)
	Dr Rodney Pattinson	Paediatrics and General Orthopaedics
	Dr Ivan Popoff	Shoulder, Knee and Elbow
	Dr Doron Sher	Knee, Shoulder and Elbow
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics

Sport & Exercise Medicine Physicians

PHYSICIAN	LOCATION	PHYSICIAN	LOCATION
Dr Paul Annett	Hurstville	Dr Mel Cusi	Concord | Hurstville | Randwick
Dr John Best	Randwick		

Dr Jerome Goldberg – Orthopaedic Surgeon

Spotlight on Dr Jerome Goldberg

Dr Jerome Goldberg is an Orthopaedic Surgeon, with an interest in arthroscopic shoulder surgery and shoulder instabilities.

A graduate of the University of Sydney, Dr Goldberg completed his orthopaedic training on the Sydney Orthopaedic Scheme in 1988. He then completed a post graduate Orthopaedic Fellowship at the New York Orthopaedic Hospital - Columbia Presbyterian Medical Centre on the Shoulder and Elbow Service under Professor Charles Neer.

Dr Goldberg is a member of Royal Australasian College of Surgeons; Australian Orthopaedics Association; Australian Society of Orthopaedic Surgeons; Australian Society of Shoulder and Elbow Surgery and the Australian Medical Association.

Dr Goldberg is published in numerous academic publications. He is past President of the Shoulder and Elbow Society of Australia, and is presently the Australasian representative of the International Board of Shoulder Surgery. He is a director of the Prince of Wales Hospital Orthopaedic Laboratory and has an interest in investigating tendon to bone healing.

Dr Goldberg consults from our Hurstville and Randwick offices.