

Ankle Instability

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Functional Instability: feeling of giving way in the ankle, insecurity or repeated sprains

Structural Instability: displacement of talus in ankle mortise on stress

CAUSES

Usually post-traumatic: there may be a history of repeated minor or major trauma

Be aware of the spectrum of injuries to the ankle which masquerade as sprains. In particular:

- 10-20% of lateral ligament tears have an injury to the syndesmosis and some of these persist into the chronic phase
- There is an association with peroneal tendon instability and tears Generalized joint laxity may predispose to ankle instability

There is controversy as to whether pes cavus predisposes to ankle instability (especially in HSMN where the peroneals are disproportionately weak)

CLINICAL ASSESSMENT

Seek a history of trauma consistent with a lateral ligament tear and/or peroneal tendon injury

Examination should evaluate:

- Evidence of muscle weakness
- Local tenderness anteriorly, over ligaments and in lateral gutter
- Bony tenderness
- Anterior draw test
- Varus stress test
- Peroneal tendon tenderness and instability

DIFFERENTIAL DIAGNOSES

- Peroneal instability
- Anterior impingement
- Loose bodies
- Subtalar instability

INVESTIGATION

Plain radiography: AP standing, lateral

Stress radiography using anterior draw and varus tilt stresses under general or peroneal nerve block anesthesia is the gold standard. However, standard stress radiography without anesthesia is not very accurate. In addition, it does not alter the initial management as all our patients will have a functional rehabilitation program whether they have structural instability or not. For this reason, we do not obtain stress radiographs unless the patient fails the functional rehabilitation program. We then do an EUA, stress views, and an arthroscopy before deciding on stabilization (see below and flow chart).

The use of a jig and the KT-1000 arthrometer have been described.

Ultrasonic evaluation of ligament integrity on stress testing has appeared in the Japanese literature.

JA/ARTHROSCOPY

- Allows stress testing under anesthetic
- Evaluate joint surface, impingement lesions, synovitis, loose bodies

Hook et al found that 25% of patients arthroscoped for instability symptoms had another intra-articular pathology, usually treatable arthroscopically

MANAGEMENT

Initially, all patients with functional ankle instability attend a functional rehabilitation course. This emphasizes proprioceptive rehabilitation and peroneal muscle strengthening. In addition, other problems such as a tight Achilles' tendon may be addressed by the therapist.

Some patients find a sports ankle support useful. There is some evidence this may improve proprioception, especially during sports. The role of taping during sports is controversial; some studies suggest it may not make much difference and it is probably less effective than a support.

Patients who are still incapacitated after a functional rehabilitation program and the use of a support and who are judged likely to comply with further treatment will be offered an EUA, stress views, and arthroscopy to determine whether they are likely to benefit from ankle ligament reconstruction.

A patient with proven structural instability and no other remediable pathology will be offered an ankle stabilization.

ANKLE LIGAMENT RECONSTRUCTION

Indications:

- Chronic structural instability
 - Failed conservative treatment
 - Disabling symptoms
 - Unwilling to wear brace
- Techniques:

Bröstrom described a procedure in which the ligament ends are identified in the tear and sutured with plication where necessary. This is easier than it sounds: the ligaments are usually readily identified even several years after the initial injury.

Several modifications have been described. The best characterized is the Bröstrom-Gould procedure in which the ligaments are advanced and inserted into bone grooves and the inferior extensor retinaculum is then sewn into the repair. This is the default procedure (except that Gould attached the ligament ends with trans-osseous sutures while we use suture anchors).

If the ligaments are not identifiable or (more commonly) attenuated beyond usefulness, they may be reinforced or replaced with doubled-over periosteal flaps as described by Zwipp. Periosteal flaps are elevated on the fibula and plicated to replace the ligaments.

For severe instability or in large patients a tenodesis is preferred. There are many different techniques, few even remotely isometric, using various donor structures. The commonest is peroneus brevis, using the whole or half the tendon. The Chrisman-Snook procedure is more isometric than the British favorites of the Evans or Watson-Jones procedures, and reconstructs the calcaneo-fibular as well as the anterior talo-fibular ligament. It is, therefore, the preferred tenodesis if enough tendon is available (this can be quite variable).

PROS AND CONS OF DIFFERENT TECHNIQUES

	Advantages	Disadvantages
Bröstrom/ modified Bröstrom w/ periosteal flap plasty	Isometric Simple No sacrifice of normal structure Good long term results Little loss of ROM	Unsuitable for severe instability
Tenodesis	Suitable for all cases Durable	Non-isometric Loss of inversion/dorsifl exion Late OA

