

clinical conduit



Lateral Ankle Surgical Stabilization and Post-Op Management

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There are more than 80 different surgical techniques described in the literature to address mechanical instability of the ankle but most could be categorized as either anatomical repairs or non-anatomical reconstructions. The anatomical repair is the more common procedure (Brostrom technique) and involves the direct repair of the anterior talofibular and calcaneofibular ligaments with reinforcement with the extensor retinaculum and lateral talocalcaneal ligament (Gould modification).

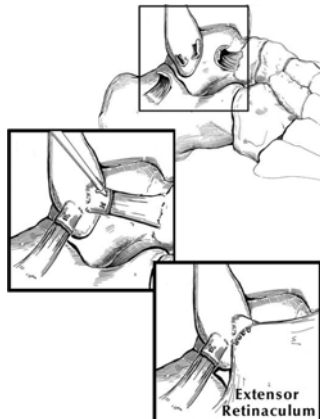
Surgical restoration is generally necessary when there has been the presence of functional instability after 6 months of therapy and despite the use of a stabilizing brace; subtalar instability; and/or mortise gapping secondary to tibiofibular ligament damage.

The Brostrom repair is generally preferred over reconstructive procedures for a variety of reasons. First, it anatomically reproduces the anterior talofibular and calcaneofibular ligament orientation while controlling anterior talar displacement, internal rotation, and tilt without compromising subtalar joint range of motion (Colville MR, et al, *Am J Sports Med*, 1992). Additionally, Liu, et al, *Am J Sports Med*, 1994, found the repair technique has the least amount of anterior talar displacement and talar tilt angle at all force levels with greater mechanical restraint than the non-anatomical (peroneal rerouting)

reconstructive procedures.

The post-op rehabilitation typically begins with immobilization in neutral dorsiflexion and slight eversion for up to 6 weeks. One study showed that bracing after the first 7-10 days in a plaster cast with controlled sagittal plane range of motion resulted in no increase in laxity and earlier return of strength and function (Karlsson, et al, *Scand J Med Sci Sports*, 1999). The initial phase of rehabilitation should focus on wound management, controlling post-op pain and edema, and strengthening of the proximal musculature. While sagittal plane dorsiplantarflexion may be allowed the patient should avoid any active or passive inversion motion. In the second phase of rehabilitation as immobilization is terminated and weight-bearing activity commences; special attention should be ...

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Upcoming Course Schedule

Knee Course

July 12-13 - Grapevine, TX

Pilates Course

Aug 16-17 - Grapevine, TX

Foot-Ankle Course

Sep 20-21 - Plano, TX

Cervical Course

Nov 15-16 - Plano, TX

A detailed description of the course content and learning objectives is available at our web site — www.continuing-ed.cc

Screening for Depression



During the initial evaluation many of our patients may present with issues independent of their impairments and physical limitations. It is critical that we identify all confounding variables that may affect their rehabilitation success. One of these possible factors could be the patient's mental health. It is our obligation to screen for the presence of depression so as to ensure that the patient can be referred for additional services that may assist in their full functional recovery. A couple of good screening tools have been published in the literature that can be a part of your initial intake process to....

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Post-Surgical Ankle Rehabilitation continued ...

Ankle Surgery References

Baumhauer JF and O'Brien T. Surgical considerations in the treatment of ankle instability. *J Athl Train.* 2002 Oct-Dec; 37(4): 458-462.

<http://www.orthosupersite.com/print.asp?rID=28659>.

Toolan BC. Broström technique gives consistent results proven over time *Orthopedics Today.* June 2008

Heiderscheit B. Lateral Ankle Reconstruction presented at 2008 APTA Annual Conference. San Antonio, TX. June 2008.

focused on restoring full range of motion through soft tissue and joint mobilization. Posterior talar glides in both weight bearing and non-weight bearing positions should be shown to facilitate this process. At about 8 weeks post-op gentle frontal plane active range of motion and progressive resistive exercises can begin. Exercise therapy should focus on restoring the dynamic stabilizers in the frontal plane with a particular emphasis on the concentric function of the peroneals, eccentric ability of the subtalar evertors, and proximal muscles such as the gluteus medius which has been shown to correlate with functional ankle instability by numerous authors (Nicholas JA. *Am J Sports Med* 1976; Friel K, et al. *JAT*, 2006; Beckman, SM. *Arch Phys Med Rehab* 1995; Bullock-Saxton JE. *Phys Ther* 1994).

Functional rehab commences when there is no longer a detectable limp during ambulation with an expectation to return to strenuous activity in 4-6 months. Proprioceptive exercise should be utilized to overcome articular deafferentation deficits. Balancing exercises can be used to restore the joint mechanoreceptor's dynamic stability function, enhance sensorimotor outflow, and improve the ankle's reaction to unpredictable external forces and stresses. The final phase of rehabilitation employs aggressive strengthening techniques, plyometric activities, and pivoting and cutting drills.



Question of the Month



Pilates exercise principles seem to have a natural application to exercise with our spine patients. Do you use Pilate's techniques for your extremity patients?

K.S., PT, - TX

I concur with your premise regarding the applicability of Pilates exercise principles in the management of spine injuries because of the attention it directs toward the important core stabilizers and I think that this same point of emphasis has relevance when treating more peripheral pathology. The principles of breathing, concentration, control, precision, balance, and relaxation should also be applied when performing upper and lower extremity rehabilitative exercise.

For all patients I think an important tenet of rehabilitation is to promote proximal stability prior to focusing on distal mobility. Most movements in activities in daily living require an integrated functional motion emanating from proximal to distal.

While many Pilates movements utilize specific equipment I tend to use mostly mat exercises be-

cause of their easy transference to a home exercise program.

Here are some simple examples of common Pilate's techniques that are appropriate for patients with peripheral joint dysfunction.

Using Pilates breathing principles to simultaneously enhance shoulder girdle and spinal mobility.



Keep the pelvis perpendicular to the floor and heels together. While breathing in, raise the upper arm to the ceiling without rolling backwards. While breathing out, roll your ribcage, shoulders, and head backward. Your raised arm should now be posterior to the frontal plane. You should feel the stretch in your upper back, the upper-ribcage, and your chest.



Using Pilates principles to maintain a neutral pelvis while performing hip abduction. To strengthen the posterior portion of gluteus medius raise the top extremity into abduction and external rotation keeping the pelvis perpendicular to the floor and heels together.

Challenging the posterior cuff while using the scapular stabilizers and spinal extensors to maintain an appropriate posture in an anti-gravity position.



Questions you would like addressed in a future issue can be sent to mulliganpt@tx.rr.com

Depression Screening References

Arroll B, et al. Screening for depression in primary care with two verbally asked questions: cross sectional study. *Brit Med J* 2003. 327: 1144-1146.

Levy HI, et al. Three-question depression screener used for lumbar disc herniations and spinal stenosis. *Spine* 2002 Jun 1; 27(11):1232-1237.



“Featured Internet Link”

Professional Organizations of Interest

[American Academy of Orthopaedic and Manual Physical Therapists \(AAOMPT\)](#)

[American Physical Therapy Association \(APTA\)](#)

[Australian Physiotherapy Association](#)

[Canadian Physiotherapy Association](#)

[Foundation for Physical Therapy](#)

[International Federation of Orthopaedic Manipulative Therapists \(IFOMPT\)](#)

[Orthopaedic Manual/Manipulative Therapy](#)

[Orthopaedic Section, APTA](#)

[Section on Research, APTA](#)

[Sports Section, APTA](#)

[World Confederation for Physical Therapy](#)

[National Athletic Trainer's Association](#)

[American Occupational Therapy Association](#)

These are active hyperlinks – Ctrl + Click to activate the link



Screening for Depression continued –

identify potential psychological overlay are outlined below. While I’ve found this to be particularly important with my lower back and neck patients it can be very helpful in screening for any patient who may be suffering from depression.

Two studies by Levy (2002) and Arroll (2003) suggest some simple questions to ask on your intake form that have proven to be highly sensitive to detecting the presence of depression.

Levy’s 3 Question Format for Low Back Patients

1. In the past year, have you had two weeks or more during which you felt sad, blue, depressed or when you lost all interest in things that you usually cared about or enjoyed?
2. Have you had two years or more in your life when you felt depressed or sad most days, even if you felt okay sometimes?
3. Have you felt depressed or sad much of the time in the past year?

Patients with positive responses reported a longer duration of symptoms and failure to improve. They were also more likely to stop work because of symptoms, receive worker’s compensation insurance, hire an attorney, be unmarried, smoke, and be less educated (below the 12th grade).

Arroll’s study was even simpler with just two verbally asked questions to detect depression.

Arroll’s 2 Questions Format for General Practice

1. During the past month have you often been bothered by feeling down, depressed, or hopeless?
2. During the past month have you often been bothered by little interest or pleasure in doing things?

An affirmative response to both questions revealed a sensitivity of 97%, specificity of 67%, positive likelihood ratio of 3, and negative likelihood ratio of 0.05 for the presence of depression.

I think we can all agree that depression could have a major impact on a patient’s progression and it is our obligation to recognize this finding and assist the patient in finding the appropriate resources to manage their psychological or behavioral impairments.

We must avoid jumping to the conclusion offered by the care provider

lampooned in the classic Gary Larson cartoon and provide our patients with all the tools that will facilitate their recovery.



Knee Fracture Clinical Decision Rules

With our profession’s goal of progressing towards direct access and autonomous practice it is important that we utilize good screening tools to rule out severe pathology or injury and quickly recognize conditions that require medical management. Two of the long-standing clinical decision rules that assist us in determining the need for a radiograph following an acute knee injury are the Ottawa and Pittsburgh knee fracture rules. The following guidelines for the appropriate use of radiographs are commonly employed in the emergency room setting.

Ottawa Knee Fracture Rule (OKFR)

An x-ray is indicated if any of the following are present within the first seven days:



1. Patient age \geq 55
2. Isolated tenderness of the patella
3. Tenderness at the head of the fibula
4. Inability to flex the knee 90°
5. Inability to immediately bear weight for 4 steps (regardless of limping)

Validation from the pooled data of 6 high quality diagnostic studies revealed the following accuracy.

Sensitivity (95% CI)	Specificity (95% CI)	+ LR	- LR
98.5 (93-100)	49 (43-51)	1.93	0.05

Pittsburgh Knee Fracture Rule

1. Mechanism of injury is a blunt trauma or fall **and**
2. Patient age < 12 or > 55
3. Inability to walk 4 weight-bearing steps in the emergency room

Sensitivity (95% CI)	Specificity (95% CI)	+ LR	- LR
99 (94-100)	60 (56-64)	2.48	0.02

The very low negative likelihood ratios for both rules suggest that application of the OKFRs create a high probability for the absence of a fracture if the requirements of the rules are not present upon examination. These rules are capable of adequately ruling out the presence of a fracture in the clinical decision making process.

References:

Crossley K. A negative result on the Ottawa knee rules excludes fracture in patients with acute knee injury. *Aust J Physiother.* 2004;50(2):116.

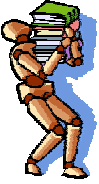
Seaberg DC, Yealy DM, Lukens T, Auble T, Mathias S. Multicenter comparison of two clinical decision rules for the use of radiography in acute, high-risk knee injuries. *Ann Emerg Med.* 1998 Jul;32(1):8-13.

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Luck is when
preparation meets
opportunity


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Dynamic Calf Stretch

Rehabilitation Exercise Technique

While traditional static stretching has been shown to be an effective way to improve ROM it doesn't seem to translate well to a functional improvement in mobility. To train the contractile unit and avoid temporary performance limitations it may be wise to employ a more active and dynamic form of motion attainment. An exercise I like to call the "heel pump" can be used to achieve this goal. The exercise is performed by leaning against a plinth at about a 45 degree angle with the core stabilized. The patient then actively alternates extending the knee and dorsiflexing the ankle by actively pushing the heel towards the support surface. The angle of inclination should be just enough that it is a challenge to get the heel to the ground as the knee extends. The alternative pumping movement is performed in a controlled manner with a gradual increase in the speed and range as the tissue "warms up". The motion is done for 20-30 repetitions during a one-minute period pausing briefly at the bottom of the motion on each repetition. I've found this exercise is an excellent way to prepare the Achilles tendon for subsequent rehabilitative (such as an eccentric heel drop progression) or athletic activities.



Featured Home Study Program Management of Lateral Ankle Sprains

A recent study in the Journal of Athletic Training (Curtis CK, et al, J Athl Training, 2008) investigated the role of shoe design in ankle sprain rates among collegiate basketball players. With the emphasis on improving athletic performance concern has been raised about whether the popular cushioned columnar type design in some shoes elevates the risk for ankle sprains. This type of shoe uses spring-like columns in the heel of the shoe in lieu of the more traditional heel counter construction. A cohort study was conducted to see if the injury rate differed based on shoe wear. In the 230 basketball players studied there was no difference observed in ankle sprain incidence between the two groups. The incidence of ankle sprains was 1.33 per 1000 exposures in the cushioned column group and 1.96 per 1000 exposures in the more traditional designs resulting in a relative risk rate of 1.47 suggesting a slight reduction of injury in the newer columnar design.

This is just one of the concerns in treating the patient following an inversion ankle sprain. In addition to shoe wear, much has been debated on the role of taping, bracing, and orthotics. If you're interested in learning more about the current best evidence in the evaluation and management of lateral ankle instability you may want to look at one of our newer on-line home studies entitled "Lateral Ankle Instability". This inservice can be viewed or read free of charge. A post-test for CEU credit is available at <http://www.continuing-ed.cc/homestudy.htm> for a reasonable fee.



Home Studies Now Available

Study and learn at your own pace at home!

Foot-Ankle Anatomy	.3 CEUs
Achilles Tendinopathy	.2 CEUs
Lateral Ankle Instability	.2 CEUs
Plantar Fasciitis	.2 CEUs
Knee Meniscal Injuries	.2 CEUs
Orthopedic Hip Injuries	.2 CEUs
Principles of Joint Mobilization	.2 CEUs
Functional Anatomy of the Shoulder	.3 CEUs
Scapular Significance: Ortho Perspective	.2 CEUs
Proximal Humerus Fracture Rehab	.2 CEUs
Subacromial Impingement Syndrome	.2 CEUs
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