Cost-effective prevention of lateral ankle injury.

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Lower limb sports injuries

Overuse syndromes: 57.2%

- Hamstring strains: 20.4%
- Ankle lig injuries: 12.6%
- Acute knee injuries: 3.6%
- Quads strains: 6.2%

Sports injuries clinic of North Greece S.E.G.A.S., 2010
Ankle ligament injuries

- 12% - 55% of all sports related injuries
- Ekstrand Foot and ankle 1990
- Bahr Scan J Med Sci Sports 1997,
  **Acute lateral ankle sprains in track and field athletes: an expanded classification.**
  N.Malliaropoulos, N.Maffulli: Foot Ankle Clin. 2006 Sep;11

- **Common cause of lost playing time in athletes (20%-35%)**
  Garrick JG. The frequency of injury, mechanism of injury, and epidemiology of ankle sprains

- **High number of recurrent ankle sprains**
  Reinjury after acute lateral ankle sprains in elite track and field athletes.

- **Frequent long term complications- up to 40%**
  Geberjp, Foot and ankle 1998

- **Most common risk factor is previous ankle lig. Inj.**
Successful treatment of ankle ligament injuries, depends on establishing an accurate diagnosis

**Classification of ankle ligament injuries**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Severity</th>
<th>Type of Injury</th>
<th>Recovery Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>mild</td>
<td>number of partial</td>
<td>1-2 wk</td>
</tr>
<tr>
<td>Grade II</td>
<td>moderate</td>
<td>injured incomplete</td>
<td>2-4wk</td>
</tr>
<tr>
<td>Grade III</td>
<td>severe</td>
<td>lateral lig. Total</td>
<td>8-24wk</td>
</tr>
</tbody>
</table>
History

Clinical examination

D.D

Follow up

Ottawa Ankle Rules (OAR)

48h price

Fracture treatment |

Re-evaluation

R.E.S

DEGREE OF SEVERITY

Treatment

REHABILITATION
Acute Lateral Ankle Sprains in Track and Field Athletes: An Expanded Classification

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**A-ROM**
- Dorsi flexion
- Plantar flexion
- Fibula
- 5th metatarsal

**EDEMA**
- Navicular tuberocity
- Tip of lateral malleolus
- Tip of medial malleolus
- Base of 5th metatarsal

**Stress x-rays**
- Neutral
- 5 kg
- 4 min
- Lateral x-ray
- Tibia to talus

**COMPARE WITH THE HEALTHY SIDE**
### LALI RES Expanded Clinical Classification

<table>
<thead>
<tr>
<th>Grade</th>
<th>Clin.</th>
<th>Decrease A-ROM</th>
<th>Edema</th>
<th>ADT X-R</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>ADT (-)</td>
<td>Up to 5°</td>
<td>Up to 0.5cm</td>
<td></td>
<td>1.5/52</td>
</tr>
<tr>
<td>II</td>
<td>ADT (+) T T (-)</td>
<td>5° to 10°</td>
<td>0.5 – 2 cm</td>
<td></td>
<td>3/52</td>
</tr>
<tr>
<td>III A</td>
<td>ADT (+) T T (+)</td>
<td>More than 10°</td>
<td>More than 2cm</td>
<td>N</td>
<td>6/52</td>
</tr>
<tr>
<td>III B</td>
<td>ADT (+) T T (+)</td>
<td>More than 10°</td>
<td>More than 2cm</td>
<td>ABN</td>
<td>10/52</td>
</tr>
</tbody>
</table>

**Acute lateral ankle sprains in track and field athletes: an expanded classification.**
N.Malliaropoulos, N.Maffulli: Foot Ankle Clin. 2006 Sep;11
**RES Clinical classification** helps us to:

- ACCURATE Diagnosis
- Differentiate functional-mechanical instability
- DEFINE the treatment
- DESIGN the rehabilitation programme
- PREDICT the time required for full activities
- Estimate the recurrence rate

**Grade I**
- 7-10 days

**Grade II**
- Two weeks
- (15) 21 days

**Grade IIIa & MRI**
- Boyce SH, B.J.S.M 2005
- Two weeks
- 38-42 days

**Grade IIIb & MRI**
- Three weeks
- 62-70 days

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**Acute lateral ankle sprains in track and field athletes: an expanded classification.**
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Rehabilitation

✓ Injury pathology specific
✓ Sports specific
✓ Level specific

Healing process phases-correlate to the right clinical applications
Cost-effective prevention of lateral ankle injury

Acute Lateral Ankle Sprains: healing process and acceleration of rehabilitation

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Original Article

ACUTE LATERAL ANKLE SPRAINS: HEALING PROCESS AND ACCELERATION OF REHABILITATION

**Rehab-Phase I - Inflammation**

*Control swelling-inflammation*


Biomechanics 2007. Ankle sprain, stretching studies split on benefits of cryotherapy (10 min ice-10 min rest-10 min ice 72h). *Ankle, Ankle Sprain, Cryotherapy*. By: Jordana Bieze Foster

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**Rehab-Phase II - Fibroblastic**

*Decrease swelling*  
*Restore-Increase a ROM*

Malliaropoulos, Papalexandris. Hamstring stretching for Ham rehab M.S.S.E. 2004

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**Rehab-Phase III - Fibroblastic**

*Strength-Proprioception*


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**Rehab-Phase IV - Remodeling**

*Functional recovery*

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**ACUTE LATERAL ANKLE SPRAINS: HEALING PROCESS AND ACCELERATION OF REHABILITATION**

Rehabilitation Phase-Clinical Criteria

**Phase 1**
Diagnosis-Degree of Severity

**Phase 2**
ROM

**Phase 3**
HOP TEST

**Phase 4**
Advanced HOP TEST
FUNCTIONAL PERFORMANCE TESTS

Rowinski MJ. Afferent neurobiology of the joint. Orthopaedic and sports physical therapy. St. Louis: C.V. Mosby 1985:50-64
Theoretical concept for optimal ankle sprain prevention.

Ankle sprain risk

No preventive measures

Neuromuscular training

External measure (tape or brace)

Ankle sprain occurrence

8–10 weeks

12–24 months


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Abstract
Background: Lateral ankle sprains can lead to persistent disability in athletes. We studied the effect of a lateral ankle sprain on occurrence of a re-injury in the same region.
Hypothesis: No difference in re-injury rate between low grade (grade I and II) and high grade (IIIA and IIIB) acute lateral ankle sprains.
Study Design: Prognostic study. Level of evidence 1.
Methods: In the period 1996 - 2004, we managed 202 elite Greek track and field athletes for an acute lateral ankle sprain. Sprains were classified into 4 degrees (I, II, IIIA and IIIB). The same rehabilitation protocol was prescribed to all the athletes. The rate of a lateral ankle re-injury was recorded in the following 24 months post injury.
Results: At a follow up of 24 months, 36 of 202 athletes (17.8%) experienced a second lateral ankle sprain. Of the 79 athletes presenting with a grade I injury, 11 (14%) experienced a recurrence during the study period. Of the 81 athletes presenting a grade II injury, 23 (29%) experienced a recurrence during the study period. Of the 36 athletes presenting a grade IIIA injury, 2 (5.6%) experienced a recurrence during the study period. Of the 6 athletes presenting a grade IIIB injury, none experienced a recurrence during the study period.
Conclusions: Athletes with a grade I and II lateral ankle sprain are at higher risk of experiencing a re-injury. Low grade acute lateral ankle sprains result in a higher risk of re-injury than high grade acute lateral ankle sprains.
Keywords: Ankle sprains; Classification criteria; Recurrence rate; Re-injury; Athlete; Sports
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Program 2012
Thank you
Thank you