### Clinical question.

In a patient with a closed joint injury (P), does the application of a compression bandage by a lay rescuer (I) decrease pain and swelling as compared to not applying a compression bandage (O)?

**Is this question addressing an intervention/therapy, prognosis or diagnosis?** This question addresses an intervention.

**State if this is a proposed new topic or revision of existing worksheet:** Revision

### Conflict of interest specific to this question

Do any of the authors listed above have conflict of interest disclosures relevant to this worksheet?

- Rita Herrington: none
- Rick Caissie: none

### Search strategy (including electronic databases searched).

- PubMed “extremity, compression” and added “rest, ice, elevation” textword in abstract.
- Medline search using text words (all fields). Cochrane database search using text words (all fields).

- Added joint, bandage, ace, wrapping with 28 additional articles from Medline
- Added: First Aid, pre-hospital, lay rescuer with no additional articles

### State inclusion and exclusion criteria

- 6130 excluded. Not injuries that required compression, injuries related to planned compression during surgical procedures, compression of stings of marine animals.

### Number of articles/sources meeting criteria for further review:

7 articles/studies relevant for review. These studies were related to compression with a commercial device or applications of bandages with various techniques for compression.
## Summary of evidence

### Evidence Supporting Clinical Question

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### Level of evidence

- A = Pain
- B = Edema
- C = Circulation
- D = Stability
- E = Other endpoint
- *Italics* = Animal studies
### Evidence Neutral to Clinical question

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Boyce 2005D; Bruhn 2002E; Kerkhoffs 2004D; Yu 2002E

### Evidence Opposing Clinical Question

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Lee 2006C; Knoblock 2006C

A = Pain
B = Edema
C = Circulation
D = Function
E = Other endpoint

Italics = Animal studies
Therapy for acute ankle injury focus on pain and swelling. PRICE (protection, rest, ice, compression and elevation) are common treatment modalities are considered well established protocols (Ivins, 2006, LOE 5). Early immobilization and functional treatment are advocated for acute ligament ruptures (Kerkoffs, 2004, LOE 5).

One small study demonstrated marked improvement when a commercial ankle brace as compared to an elastic bandage (Boyce, 2005). One study of 21 healthy volunteers using a combination of compression and an ankle cuff device showed significant reduced superficial tissue oxygen saturation and a warning that more clinical studies must be considered in order to recommend the device (Knobloch, 2006).

Treatment using semi-rigid supports are superior to elastic bandages (Ivins, 2006, LOE 5). Comparisons of elastic bandages and rigid splints for acute lateral ankle ligament ruptures demonstrated increased instability of those participants using elastic bandages (Kerkoffs, 2004, LOE 5).

Application of bandages using different techniques demonstrate varying pressures. These techniques must be appreciated by those applying the bandage. These pressure differences are related to the type of bandage and the application and pressure difference can be striking (Lee, 2006, LOE 5).

The Ottawa Ankle and Foot Rules provide clinical guidelines for assessment of fractures and determine if radiography is indicated at the time of injury. While these guidelines are applicable to the healthcare professional they would not be appropriate for the lay rescuer.

No studies were found that compared patients that receive compression bandages compared to those that do not receive compression bandaging of joint injuries. Lower extremity edema control is important to decrease pain and discomfort and prevent complications. There are no significant studies to show a superior method of bandaging that provides consistent, positive outcomes.

Acknowledgements:
**Citation List**


