

# Soft-tissue injuries simply need PEACE and LOVE

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Rehabilitation of soft-tissue injuries can be complex. Over the years, acronyms guiding their management have evolved from ICE to RICE, then on to PRICE and POLICE.<sup>1</sup> Although widely known, these previous acronyms focus on acute management, unfortunately ignoring subacute and chronic stages of tissue healing. Our contemporary acronyms encompass the rehabilitation continuum from immediate care (PEACE) to subsequent management (LOVE). PEACE and LOVE (figure 1) outline the importance of educating patients and addressing psychosocial factors to enhance recovery. While anti-inflammatories show benefits on pain and function, our acronyms flag their potential harmful effects on optimal tissue repair. We suggest that they may not be included in the standard management of soft-tissue injuries.

## IMMEDIATELY AFTER INJURY, DO NO HARM AND LET PEACE GUIDE YOUR APPROACH.

### P for protect

Unload or restrict movement for 1–3 days to minimise bleeding, prevent distension of injured fibres and reduce the risk of aggravating the injury. Rest should be minimised as prolonged rest can compromise tissue strength and quality.<sup>1</sup> Pain signals should guide the cessation of protection.

### E for elevate

Elevate the limb higher than the heart to promote interstitial fluid flow out of tissues. Despite weak evidence supporting its use, elevation shows a low risk-to-benefit ratio.

### A for avoid anti-inflammatory modalities

The various phases of inflammation help repair damaged soft tissues. Thus, inhibiting inflammation using medications may negatively affect long-term tissue healing,

especially when higher dosages are used.<sup>2</sup> Standard of care for soft-tissue injuries should not include anti-inflammatory medications.

We also question the use of cryotherapy. Despite widespread use among clinicians and the population, there is no high-quality evidence on the efficacy of ice for treating soft-tissue injuries.<sup>2</sup> Even if mostly analgesic, ice could potentially disrupt inflammation, angiogenesis and revascularisation, delay neutrophil and macrophage infiltration as well as increase immature myofibres.<sup>3</sup> This may lead to impaired tissue repair and redundant collagen synthesis.<sup>3</sup>

### C for compress

External mechanical pressure using taping or bandages helps limit intra-articular oedema and tissue haemorrhage.<sup>2,4</sup> Despite conflicting studies,<sup>2</sup> compression after an ankle sprain seems to reduce swelling and improve quality of life.<sup>4</sup>

### E for educate

Therapists should educate patients on the benefits of an active approach to recovery.

Passive modalities, such as electrotherapy, manual therapy or acupuncture, early after injury have insignificant effects on pain and function compared with an active approach,<sup>2</sup> and may even be counterproductive in the long term. Indeed, nurturing an external locus of control or the ‘need to be fixed’ can lead to therapy-dependent behaviour. Better education on the condition and load management will help avoid *overtreatment*. This in turn reduces the likelihood of unnecessary injections or surgery, and supports a reduction in the cost of healthcare (eg, due to disability compensation associated with low back pain).<sup>5</sup> In an era of hi-tech therapeutic options, we strongly advocate for setting realistic expectations with patients about recovery times instead of chasing the ‘magic cure’ approach.

## AFTER THE FIRST DAYS HAVE PASSED, SOFT TISSUES NEED LOVE.

### L for load

An active approach with movement and exercise benefits most patients with musculoskeletal disorders.<sup>2,6</sup> Mechanical stress should be added early and normal activities resumed as soon as symptoms allow. Optimal loading<sup>1</sup> without exacerbating pain promotes repair, remodeling and builds tissue tolerance and the capacity of tendons, muscles and ligaments through mechanotransduction.<sup>6</sup>



Figure 1 PEACE and LOVE acronyms.

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**O for optimism**

Optimistic patient expectations are associated with better outcomes and prognosis. Psychological factors such as catastrophisation, depression and fear can represent barriers to recovery. Beliefs and emotions are thought to explain more of the variation in symptoms following an ankle sprain than the degree of pathophysiology.<sup>7</sup>

**V for vascularisation**

Cardiovascular activity represents a cornerstone in the management of musculoskeletal injuries. While research is needed on dosage, pain-free aerobic exercise should be started a few days after injury to boost motivation and increase blood flow to the injured structures. Early mobilisation and aerobic exercise improve physical function, supporting return to work and reduce the need for pain medication in individuals with musculoskeletal conditions.<sup>8</sup>

**E for exercise**

There is a strong level of evidence supporting the use of exercise for the treatment of ankle sprains and for reducing the prevalence of recurrent injuries.<sup>2</sup> Exercises help to restore mobility, strength and proprioception early after injury.<sup>2</sup> Pain should be avoided to ensure optimal repair during the subacute phase

of recovery, and should be used as a guide for exercise progressions.

Managing soft-tissue injuries is more than short-term damage control. Similar to other injuries, clinicians should aim for favourable long-term outcomes and treat the person with the injury rather than the injury of the person. Whether they are dealing with an ankle sprain or a hamstring strain, we hope this editorial will encourage clinicians to give PEACE a chance, because perhaps all soft-tissue injuries need is LOVE.

A longer version of this idea was posted on the BJSM blog <https://blogs.bmj.com/bjasm/2019/04/26/soft-tissue-injuries-simply-need-peace-love/> in April 2019. That version has 20 references.

**Contributors** BD proposed the initial idea. BD and J-FE drafted the article and provided input on subsequent versions.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Provenance and peer review** Not commissioned; internally peer reviewed.

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**To cite** Dubois B, Esculier J-F. *Br J Sports Med* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bjsports-2019-101253

Accepted 16 July 2019

*Br J Sports Med* 2019;0:1–2.  
doi:10.1136/bjsports-2019-101253

**REFERENCES**

- 1 Bleakley CM, Glasgow P, MacAuley DC. Price needs updating, should we call the police? *Br J Sports Med* 2012;46:220–1.
- 2 Vuurberg G, Hoorntje A, Wink LM, et al. Diagnosis, treatment and prevention of ankle sprains: update of an evidence-based clinical guideline. *Br J Sports Med* 2018;52:956.
- 3 Singh DP, Barani Lonbani Z, Woodruff MA, et al. Effects of topical icing on inflammation, angiogenesis, revascularization, and myofiber regeneration in skeletal muscle following contusion injury. *Front Physiol* 2017;8:93.
- 4 Hansrani V, Khanbhai M, Bhandari S, et al. The role of compression in the management of soft tissue ankle injuries: a systematic review. *Eur J Orthop Surg Traumatol* 2015;25:987–95.
- 5 Graves JM, Fulton-Kehoe D, Jarvik JG, et al. Health care utilization and costs associated with adherence to clinical practice guidelines for early magnetic resonance imaging among workers with acute occupational low back pain. *Health Serv Res* 2014;49:645–65.
- 6 Khan KM, Scott A. Mechanotherapy: how physical therapists' prescription of exercise promotes tissue repair. *Br J Sports Med* 2009;43:247–52.
- 7 Briet JP, Houwert RM, Hageman M, et al. Factors associated with pain intensity and physical limitations after lateral ankle sprains. *Injury* 2016;47:2565–9.
- 8 Sculco AD, Paup DC, Fernhall B, et al. Effects of aerobic exercise on low back pain patients in treatment. *Spine J* 2001;1:95–101.