

Treatments Used for Musculoskeletal Conditions: More Choices and More Evidence

CHAPTER

10

Treatment begins when the patient first presents with symptoms. But the boundary between the end of treatment and the start of rehabilitation is blurry. In many conditions that are managed conservatively (e.g. hamstring muscle strain, tendinopathy) the exercises that are started for 'treatment' also contribute to the rehabilitation process. If one were required to make a distinction, it might be that the treatment exercises are focused on the pathological structure, whereas the rehabilitative exercises have a wider scope and ensure that other structures are not suffering from the injury-related immobility.

For the reader's convenience, we discuss therapies that apply to both 'treatment' and 'rehabilitation' in just one of the relevant chapters. For example, manual therapy is covered in this chapter even though it can be an important part of ongoing rehabilitation. On the other hand, exercise prescription (resistance exercises, proprioceptive training, flexibility training and activities that combine these elements), an essential 'treatment' of musculoskeletal conditions, is covered in Chapter 12.

Evidence for treatment effectiveness is continuously changing

The purpose of this chapter is to provide the essential background information regarding various treatments that are referred to in Part B. Here we define and describe specific treatments, we report the level of evidence for their effectiveness and we aim to provide a clinical perspective on their use in musculoskeletal

medicine. For therapies that have uniform doses of treatment (e.g. glyceryl trinitrate [GTN] patches for various tendinopathies) the doses are specified in this chapter. Where treatment instructions vary by body part (e.g. electrotherapy modes and doses), specifics are held over to the chapter dealing with treatment of that region.

Overall, the past decade has seen an augmentation of evidence for many treatments in sports medicine (see box).

Some people believe that no treatment is really effective for any condition. This view is captured in the aphorism 'Time heals and the physician sends the bills' (note that other members of the clinical team are not being guilty of this!). Another term for this philosophical position is 'therapeutic nihilism'. Such a position has little merit in the 21st century with the increasing evidence for successful treatments for musculoskeletal conditions and the overwhelming evidence for physical activity as a very major determinant of all-system health.

Our final introductory point regarding treatment, and evidence or absence of it, is to remind the reader that there has been no randomized controlled trial evidence suggesting that, when jumping from an airplane, using a parachute provides superior outcomes to jumping without one. All evidence of harm to those who jumped without a parachute has been in retrospective case series (level 4 evidence). As clinicians, we should take note of the evidence that has been gathered but celebrate that our craft remains as much art as science.

Part of the art of musculoskeletal medicine is ensuring that patients can benefit from the appropriate

Examples of treatments with a long history of 'clinical use' which were investigated in randomized controlled trials (RCTs)

RCTs found that the established treatment was effective

Manual therapy in neck pain^{1,2}
 Manual therapy in back pain^{3,4}
 Resistance training for adductor tendinopathy⁵
 McConnell program for patellofemoral pain⁶
 McConnell program for knee osteoarthritis⁷
 Strength and balance exercises after ankle sprain⁸
 Early mobilization after injury⁹
 Strength and balance training for fall prevention in seniors¹⁰

RCT(s) found that the established treatment was ineffective (at 1 Jan. 2006)

Corticosteroid injection for early lateral elbow tendinopathy¹¹
 When the knee is mobilized with exercise after knee replacement, adding continuous passive motion or slider board therapy did not provide additional benefit¹²
 NSAIDs in Achilles tendinopathy¹³
 Low-intensity infra-red laser for plantar fasciitis¹⁴



Figure 10.1 Skydiving: There is only level 4 evidence (case reports) to suggest that wearing a parachute is associated with superior outcomes than not wearing one when jumping from an airplane

elements of a large menu of available treatments. This chapter discusses this menu according to the following subheadings:

- minimizing extent of injury (RICE)
- immobilization and early mobilization
- therapeutic drugs, including glyceryl trinitrate (GTN), sclerosing therapy, glucosamine
- heat and cold
- electrotherapeutic modalities

- extracorporeal shock wave therapy
- manual therapy
 - joints
 - mobilization
 - manipulation
 - traction
 - muscles
 - soft tissue therapy
 - muscle energy techniques
 - neural—stretching
- acupuncture
- dry needling
- hyperbaric oxygen
- surgery.

The clinician should evaluate the effectiveness of each type of treatment by comparing symptoms and signs before and after treatment (i.e. both immediately after treatment and again at the next visit). This enables the clinician to choose the most appropriate mode of treatment for the specific injury and the specific individual.

Minimizing extent of injury (RICE)

The most important time in the treatment of acute soft tissue injuries is in the 24 hours immediately following injury. When soft tissue is injured, blood vessels are usually damaged too. Thus, blood accumulates around damaged tissue and compresses adjoining tissues,