



## When musculoskeletal pain strikes

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### Introduction

The pharmacist's assistant may often be approached for advice about muscular injuries, sprains and strains. Simple practical advice combined with topical or oral over-the-counter (OTC) treatment can be valuable.

### Causes

Musculoskeletal pain is frequently caused by an injury (trauma) to the bones, joints, muscles, tendons, ligaments, or nerves. This can be the result of falls, sprains, fractures, sports activities, car accidents, lifting heavy loads and direct blows to the muscle.

Musculoskeletal pain may also be caused by:

- Overuse – lower back pain from overuse occurs commonly
- Poor posture or prolonged immobilisation
- Strenuous and unaccustomed activity such as gardening or exercise
- Joint injuries and diseases, which may produce stiff aching "arthritic" pain

### Symptoms

Common symptoms of musculoskeletal pain include:

- Localised or widespread pain that becomes worse with movement
- Aching or stiffness of the entire body
- The feeling that muscles have been pulled or overworked
- A burning sensation in the muscle

### Management

The management of musculoskeletal pain will vary, depending on where the pain is being experienced, for example in a bone, muscle, ligament, tendon or joint. Treatments may include physical therapy, reducing the workload and increasing rest, and immobilising the site of injury as appropriate. Oral or topical analgesic medications may be useful to relieve pain.

Muscle pain which has occurred during an activity is usually indicative of a "pulled" or strained muscle. This type of injury may respond well to RICE therapy:

- **Rest.** Stop normal activities for a while.
- **Ice.** Apply ice, such as an ice pack, to the painful area for twenty minutes several times a day. (Remember: Do not apply ice directly to the skin.)
- **Compression.** Use a compression bandage to reduce swelling.
- **Elevation.** Elevate an injured limb to help reduce swelling.

Refer to a doctor if a fracture or other more serious injury is suspected, or if pain is particularly severe.

**Oral and topical analgesics** are effective in relieving musculoskeletal pain.

**Oral analgesics** which are available OTC include paracetamol, and some non-steroidal anti-inflammatory drugs (NSAIDs).

**Paracetamol** is an effective oral analgesic, and is relatively safe when taken as recommended. Although it does not reduce inflammation, it is often preferred for muscle or joint pain which have little or no inflammation, such as osteoarthritis.

**NSAIDs** have therapeutic properties which are characteristic of aspirin, namely, they relieve pain and reduce inflammation.

**Aspirin** relieves pain, but high doses, which may not be tolerated, are required for anti-inflammatory relief. Aspirin is unsuitable for children under the age of 16 years because of the possibility of developing Reye's syndrome.

Oral NSAIDs other than aspirin provide analgesic and anti-inflammatory relief at normal therapeutic doses, and are

indicated for several types of musculoskeletal pain including strains, sprains and joint pain.

Examples of these agents which are available OTC include ibuprofen, diclofenac, naproxen, and mefenamic acid.

**Ibuprofen** is recommended as the agent least likely to cause side-effects.

These agents may be sold OTC for a maximum period of five days treatment for post-traumatic conditions.

Oral formulations of these medications for adult use include tablets and capsules.

All oral NSAIDs are associated with side-effects, and minor gastrointestinal symptoms such as dyspepsia occur commonly. In order to avoid adverse effects, the lowest dose that is effective should be taken for the shortest period of time, and these agents are best administered with or after food.

### Remember:

The manufacturer's recommendations should be followed when using oral NSAIDs, and care should be taken that there are no contraindications to their use. It should also be ascertained if any interactions could take place with other medications which the patient might be taking. Oral NSAIDs are contra-indicated if sensitivity has been experienced with any other type of NSAID or aspirin, or if a peptic ulcer is present.

**Topical products** used for musculoskeletal pain include counter irritants and rubefaciants, and NSAID preparations. There is a wide variety of these products available, including ointments, creams, liniments, patches, and sprays.

**Counter irritants** produce mild skin irritation, and **rubefacient** refers to the resultant reddening and warming effect on the skin. These sensations are thought to distract attention from the pain, and the massaging action used when applying them may provide benefit by relaxing the muscles.

### Counter irritants include:

Methyl salicylate, diethylamine salicylate, camphor, nicotines such as methyl nicotinate, and menthol. Menthol has the added effect of producing a feeling of coolness followed by warmth.

Salicylates including methyl salicylate and diethylamine salicylate are related to aspirin, and help to relieve pain when absorbed into the skin. Methyl salicylate is a widely used and effective counter irritant.

Capsicum causes warm tingling sensations and does not produce reddening of the skin.

Some products may contain one ingredient only, for example methyl salicylate. Others are available as combinations of ingredients with different properties, for example, methyl salicylate may be in combination with capsicum, and methyl nicotinate.

**Topical NSAID agents** include ibuprofen, ketoprofen, indomethacin, diclofenac, flurbiprofen. When applied, the active ingredient is absorbed into the skin, and appears to become concentrated in the affected tissue only. Topical NSAIDs are effective as analgesic agents, but with fewer side-effects than oral NSAIDs.

### When applying any topical musculoskeletal analgesic agent remember:

- All topical applications should be applied according to the recommendations of the manufacturer, usually by gentle massage two to three times per day.
- Do not apply to inflamed or damaged skin.
- Do not use under a tight bandage or plaster.
- Patients should always wash their hands after application, and avoid touching their eyes with the product on their hands.
- Stop application immediately should any adverse reaction develop.

Topical NSAIDs and methyl salicylate-containing applications should be used with caution if there is any sensitivity to aspirin.

## Conclusion

The pharmacist's assistant is well placed to give considered advice when dealing with musculoskeletal pain. A doctor should be consulted if symptoms worsen, or if there is no improvement after appropriate OTC treatment.

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