**Musculoskeletal problems**

Pharmacists are frequently asked for advice about muscular injuries, sprains and strains. Simple practical advice combined with topical or oral OTC treatment can be valuable.

**Significance of questions and answers**

**Age:** In older people, a fall is more likely to result in a fracture; older women are particularly at risk because of osteoporosis. Referral to the local accident and emergency department for X-rays may be the best course of action in such cases.

**Symptoms and history Injuries** commonly occur as a result of a fall or other trauma and during physical activity such as lifting heavy loads or taking part in sport. Exact details of how the injury occurred should be established by the pharmacist.

***Sprains and strains***

**A sprain** injury involves the over stretching of ligaments and/or the joint capsule, sometimes with tearing. The most common sprain involves the lateral ankle ligament. Referral is the best course of action. **Strains** are injuries where the muscle fibers are damaged by over stretching and tearing.

Early mobilisation,strengthening exercises and coordination exercises are all important after both sprains and strains. The return to full activity must occur gradually.

***Muscle pain***Stiff and painful muscles may occur simply as a result of strenuous and unaccustomed work, such as gardening, decorating or exercise, and the resulting discomfort can be reduced by treatment with OTC medicines.

***Bruising*** Bruising as a result of injury is common and some products that minimize bruising are available OTC. Spontaneous bruising may be symptomatic of an underlying blood disorder, for example, thrombocytopenia (lack of platelets) or leukemia, or may result from an adverse drug reaction or other cause.

***Head injury*** Pain occurring as a result of head injury should always be viewed with suspicion and such patients, particularly children, are best referred for further investigation.

***Bursitis***

This is the name given to a sac of tissue where skin moves over joints or where bones move over one another. The function of a bursa is to reduce friction during movement.) Examples of bursitis are housemaid’s knee and student’s elbow.

***Fibromyalgia*** refers to chronic widespread pain affecting the muscles but not the joints; this condition may be precipitated by psychological distress and physical trauma. Referral to a GP for assessment would be advisable. Medication (e.g.tricyclics, NSAIDs and) is of limited benefit in these situations ,and often ‘talking therapies’ like cognitive behavioral therapy have more to offer.

***Frozen shoulder*** Frozen shoulder is a common condition where the shoulder is stiff and painful. It is more prevalent in older patients. The shoulder pain sometimes radiates to the arm and is often worse at night. referral to the GP surgery for accurate assessment and to arrange treatment (e.g. physiotherapy) is advisable.

***Painful joints*** Pain arising in joints (arthralgia) may be due to arthritis, for which there are many causes. The pain may be associated with swelling, overlying inflammation, stiffness, limitation of movement and deformity of the joint. A common cause of arthritis is osteoarthritis (OA) and it is therefore necessary to refer to the doctor all except mild cases.

***Rheumatoid arthritis (RA)*** Suspect RA in anyone with joint swelling. It typically causes symmetrical joint inflammation (synovitis) of the small joints of the hands and feet ,although other joints may be affected. Stiffness is most noticeable in the morning and after inactivity and usually lasts more than 30 min. People with these symptoms for the first time, and people with a past history of RA who develop these symptoms (a ‘flare up’) should be referred to the GP surgery for urgent assessment.

***Low back pain***

Non-serious acute back problems need to be treated early, with mobilization and exercise thought to be particularly important in the prevention of **chronic** low back pain. **Acute back pain** is generally regarded as lasting less than 6 weeks, subacute for 6–12 weeks and chronic longer than 12 weeks .The emphasis should be on mobilizing and maintaining activity, supported by pain relief. There is evidence from randomized controlled trials that advice to stay active results in faster recovery, reduced pain, reduced disability and reduced time off work compared with advice to rest. If having given advice of this nature, there is no improvement within 1 week, referral is advisable. Pain that is more sever ,causing difficulty with mobility or radiating from the back down one or both legs, is an indication for referral for assessment at the GP surgery .A slipped disc can press on the sciatic nerve (hence sciatica) causing pain and sometimes pins and needles and numbness in the leg. Low back pain associated with any altered sensation in the anal or genital area or bladder symptoms requires urgent referral

***Prevention of recurrent back pain***

Good posture, lifting correctly, a good mattress and losing excess weight can help. Paying attention to posture and body awareness is important, and classes to relearn good posture may help some patients (e.g. using the Alexander technique). NICE suggests that group exercise programs (biomechanics, aerobic, mind–body or a combination of approaches) may help and many NHS physiotherapy departments run ‘back classes’ to provide these. The additional pressure on the spine caused by excess weight may lead to structural compromise and damage (e.g. injury and sciatica) so weight loss should be advised. The lower back is particularly vulnerable to the effects of obesity, and lack of exercise leads to poor flexibility and weak back muscles.

***Whiplash injuries***

Neck pain following a car accident is common. Acute whiplash injury follows sudden or excessive bending ,or rotation of the neck, and can also follow things like a diving injury. The symptoms usually last for a few weeks, but rarely they can last for a longer period, The use of paracetamol or NSAIDs may also help.

**When to refer**

 Suspected fracture, Possible adverse drug reaction, falls or bruising, Head injury ,Whiplash injuries ,Medication failure ,Suspected arthritis, Severe or prolonged back pain ,Back pain (and/or pins and needles/numbness) radiating to leg, Back pain in the middle/upper back (especially in the older patient)

**Treatment timescale** Musculoskeletal conditions should respond to treatment within a few days. A maximum of 5 days treatment should be recommended, after which patients should see their doctor.

**Management**

The oral analgesics used would usually be paracetamol or ibuprofen, provided there were no contraindications. Recently it has been suggested that paracetamol is relatively ineffective for low back pain. Taking the analgesic regularly is important to obtain full effect and the patient needs to know this. Topical formulations include creams, ointments, lotions, sticks and sprays.

**Topical analgesics** There is a high placebo response to topical analgesic products. This is probably because the act of massaging the formulation into the affected area will increase blood flow and stimulate the nerves, leading to a reduction in the sensation of pain.

**Counterirritants and rubefacients**

Counterirritants and rubefacients cause vasodilatation, inducing a feeling of warmth over the area of application. Counterirritants produce mild skin irritation, and the term rubefacient refers to the reddening and warming of the skin. The theory behind the use of topical analgesics is that they bombard the nervous system with sensations other than pain (warmth and irritation), and this is thought to distract attention from the pain felt. Simply rubbing or massaging the affected area produces sensations of warmth and pressure and can reduce pain. Massage is known to relax muscles, and it may be that massage may disperse some of the chemicals that are responsible for producing pain and inflammation by increasing the blood flow. The mode of action of topical analgesics is therefore twofold: one effect relying on absorption of the agent through the skin, while the other on the benefit of the massage..For customers who live alone,a spray formulation, which does not require massage, can be recommended for areas such as the back andshoulders.Generally,patients can be advised to use topical analgesic products up to four times a day, as required.

***Methyl salicylate***is one of the most widely used counterirritants. Wintergreen is its naturally occurring form; synthetic versions are also available

***Nicotinates*** (e.g.ethyl nicotinate and hexyl nicotinate) are absorbed through the skin and produce reddening of the skin and an increase in blood flow and temperature.

***Menthol*** Menthol has a cooling effect when applied to the skin and acts as a mild counterirritant. Used in topical formulations in concentrations of up to 1%,menthol has antipruritic actions, but at higher concentrations it has a counterirritant effect. When applied to the skin in a topical analgesic formulation, menthol gives a feeling of coolness, followed by a sensation of warmth.

***Capsaicin/capsicum*** The sensation of hotness from eating peppers is caused by the excitation of nerve endings in the skin, body organs and airways by a chemical called capsaicin. Capsicum preparations, for example, capsaicin capsicum and capsicum oleoresin, produce a feeling of warmth when applied to the skin.

**Irritant effect of topical analgesics**

 Preparations containing topical analgesics should always be kept well away from the eyes, mouth and mucous membranes and should not be applied on broken skin. Intense pain and irritant effects can occur following such contact. This is due to the ready penetration of the irritant topical analgesics through both mucosal surfaces and direct access via the broken skin.

**Topical anti-inflammatory agents**

Topical NSAIDs, such as ibuprofen, diclofenac, felbinac, ketoprofen, piroxicam and benzydamine, are available in a range of cream and gel formulations. Because there is some absorption with systemic effects, topical NSAIDs should not be used by patients who experience adverse reactions to aspirin, such as asthma, rhinitis or urticaria. As there is higher likelihood of aspirin sensitivity in patients with asthma, caution should be exercised when considering recommending a topical NSAID.

Heparinoid and hyaluronidase are enzymes that may help to disperse oedematous fluid in swollen areas. A reduction in swelling and bruising may therefore be achieved. Products containing heparinoid or hyaluronidase are used in treatment of bruises, strains and sprains.

**Glucosamine and chondroitin** There is some limited evidence that the ‘nutriceuticals’, glucosamine sulphate and chondroitin, improve the symptoms of OA in the knee and that glucosamine may have a beneficial structural effect on joints .However,the quality of much of the research is poor. There is insufficient information about pharmaceutical quality and actual content of glucosamine to enable pharmacists to make informed choices between available products.

**Acupuncture** Acupuncture has been used for many years for a variety of musculoskeletal conditions, including osteoarthritis and lower back pain.

**How should I manage a sprain or strain in primary care?**

Advise the person:

■ To manage their injury using the PRICE measures:

* **Protection** –protect from further injury (for example, by using a support or high-top, lace-up shoes).
* **Rest** –avoid activity for the first 48–72 h following injury.
* **Ice** –apply ice wrapped in a damp towel for 15–20 min every 2–3 h during the day for the first 48–72 h following the injury. This should not be left on while the person is asleep.
* **Compression** –with a simple elastic bandage or elasticated tubular bandage, which should be snug but not tight, to help control swelling and support the injury. This should be removed before going to sleep.
* **Elevation** –keep the injured area elevated and supported on a pillow until the swelling is controlled. If the leg is injured, prolonged periods with the leg not elevated should be avoided.

■ To avoid HARM in the first 72 h after the injury:

◦ Heat –for example, hot baths, saunas and heat packs

◦ Alcohol –increases bleeding and swelling and decreases healing

◦ Running –or any other form of exercise that may cause further damage

◦ Massage –may increase bleeding and swelling

**Obesity**

**Classification**

1. Based on BMI

2. Normal: BMI 18.5–24.9 kg/m2

3. Overweight: BMI 25.0–29.9 kg/m2

4. Obesity a. Class I: BMI 30.0–34.9 kg/m2

 b. Class II: BMI 35.0–39.9 kg/m2

 c. Class III: BMI 40 kg/m2 or greater

**Therapy goals**

1. Weight loss: Initial goal 5%–10% decrease from baseline weight over 6 months

2. Maintain lower weight in the long term.

3. Limit weight-induced comorbidities (e.g., T2D, hypertension, cardiovascular disease).

**Nonpharmacologic therapy**( aimed at providing an energy deficit)

1. Increased physical activity: 200–300 minutes per week

2.Dietary options:any diet that has proven weight reduction data available is appropriate.

No specific recommendation of one diet over another. Individualize according to patient preferences

 a.Striveforatleasta500-kcal/day deficit.

 b. 1200–1800 kcal/day for women

 c. 1500–1800 kcal/day for men

3. Behavioral intervention: According to ACC/AHA/TOS guidelines: Preferably in-person, high-intensity (at least 14 sessions in 6 months) comprehensive weight-loss intervention through group or individual sessions with a professional (e.g., dietitian, exercise specialist, health counselor)

4. Surgery: Usually reserved for patients with severe obesity (BMI greater than 40 kg/m2) or lower BMIs with existing comorbidities

 a. Gastric bypass

 b. Gastric banding

 **Pharmacotherapy**

**1.** Always in conjunction with diet, physical activity, and behavioral therapy

**2**. Medications should be reserved for those not achieving or sustaining weight reduction with adequate lifestyle modifications, in those with obesity, or in those with obesity, or with aBMI of at least 27 kg/m2 with significant weight-related comorbidities (e.g., diabetes, hypertension).

**3**.Medication selected according to risk-benefit profile should be approved by the US. Food and drug administration (FDA).

 **4. Orlistat**

**a**. Mechanism of action: Reduced absorption of fat by inhibition of gastric and pancreatic lipases.

**b.** Dosing

i. Prescription: 120 mg three times daily during or up to 1 hour after meals

ii. Over the counter: 60 mg three times daily during or up to 1 hour after meals

**C**. Adverse effects: Gastrointestinal (GI) tract: Flatulence, oily stools, loose stools, fecal urgency, or incontinence (highly dependent on fat content of meal)

**D**.Contraindication: orlistat should not be supplied if there is renal/kidney disease, thyroid disease or epilepsy. Patients with chronic malabsorption syndrome and those with cholestasis (bile flow from the liver is blocked) should also not take OTC orlistat. It is contraindicated in pregnancy and in women who are breastfeeding.

**Referral to the Gp**

Thedosesofsomemedicinesmayneedtobeadjustedifthepatientlosesweight. Weight loss is likely to lead to improvements in metabolic control in diabetes, to changes in cholesterol levels and to lower blood pressure in hypertension. Doses of diabetic, cholesterol lowering and antihypertensive medication may therefore need to be changed. Other medicines where the patient needs to check with their GP before starting orlistat are amiodarone, acarbose, ciclosporin and levothyroxine. There is an increased risk of convulsions when orlistat is given with antiepileptics. Patients with renal/kidney disease should consult their GP before us





