Intended learning outcomes

The Intended Learning Outcomes are to be able to:

- Discuss the common causes of joint pain
- Discuss how to gather information in a patient presenting with joint pain
- Demonstrate how to gather a well-rounded impression of a patient presenting with back pain including understanding the patient's perspective
- Demonstrate the GALS screen

Context for the session

Students will have covered the following in the two-week joint pain block:

In **Case-Based Learning** they will have discussed a 24-year-old, male, self-employed brick layer. He initially presents to his GP with acute lower back pain (non-specific/mechanical back pain). He re-presents four years later, to the Emergency Department, with reduced perianal sensation, urinary hesitancy, and neurological signs (cauda equina diagnosed on MRI).

In **Lectures, workshops and practical** they will have learnt about:

- The synovial joint
- Rational imaging of the painful knee
- Back pain
- Rational imaging of lower back pain
- Fragile bones and crush fractures in older people
- The painful joint
- Joint pain with systemic illness
- Pain pathways and analgesia
- Preserving bone mass in ageing people

Specifics for joint pain in GP clinical contact

Introduction

The key learning goal for this session are for students to apply their knowledge by interviewing and examining patients with musculoskeletal symptoms.

As with the previous sessions:

- refer to the Year 2 GP handbook, which covers the information common to all sessions.
- use the suggested session plan below as a guide on how to use your time with your group

Allow time for:

- introductions (reflecting on any learning/action points from the previous session, low mood)
- student-led interaction with patient(s), and
- debriefing the group (usually without the patient present) to ask questions and consolidate learning.

Musculoskeletal disorders account for ~30% GP's consultations and are the most common cause of repeat consultations in primary care. Get/observe/help students to:

- interview and examine patients with relevant problems and summarise what they have found to you
- consider variations in presentation, differential diagnosis and what they might do next
- consider the patient perspective, impact of the illness or problem on patient lives, and to consider what support and future needs patients have.

And give feedback accordingly.

(Expert) patients

Suitable patients for the block are people with musculoskeletal problem(s) that affect their mobility or activities of daily living, who are willing to speak to and be examined by medical students. Examples of suitable conditions include osteoarthritis of one or more joints; mechanical back pain; and/or rheumatoid arthritis.

Tasks

Ask the students to reflect on their learning about low mood and how it might apply to joint pain.

Assess students' learning needs for this session: what have students learnt during their joint pain case-based learning, what do they feel confident in, and what do they want to revisit?

Prepare for the session:

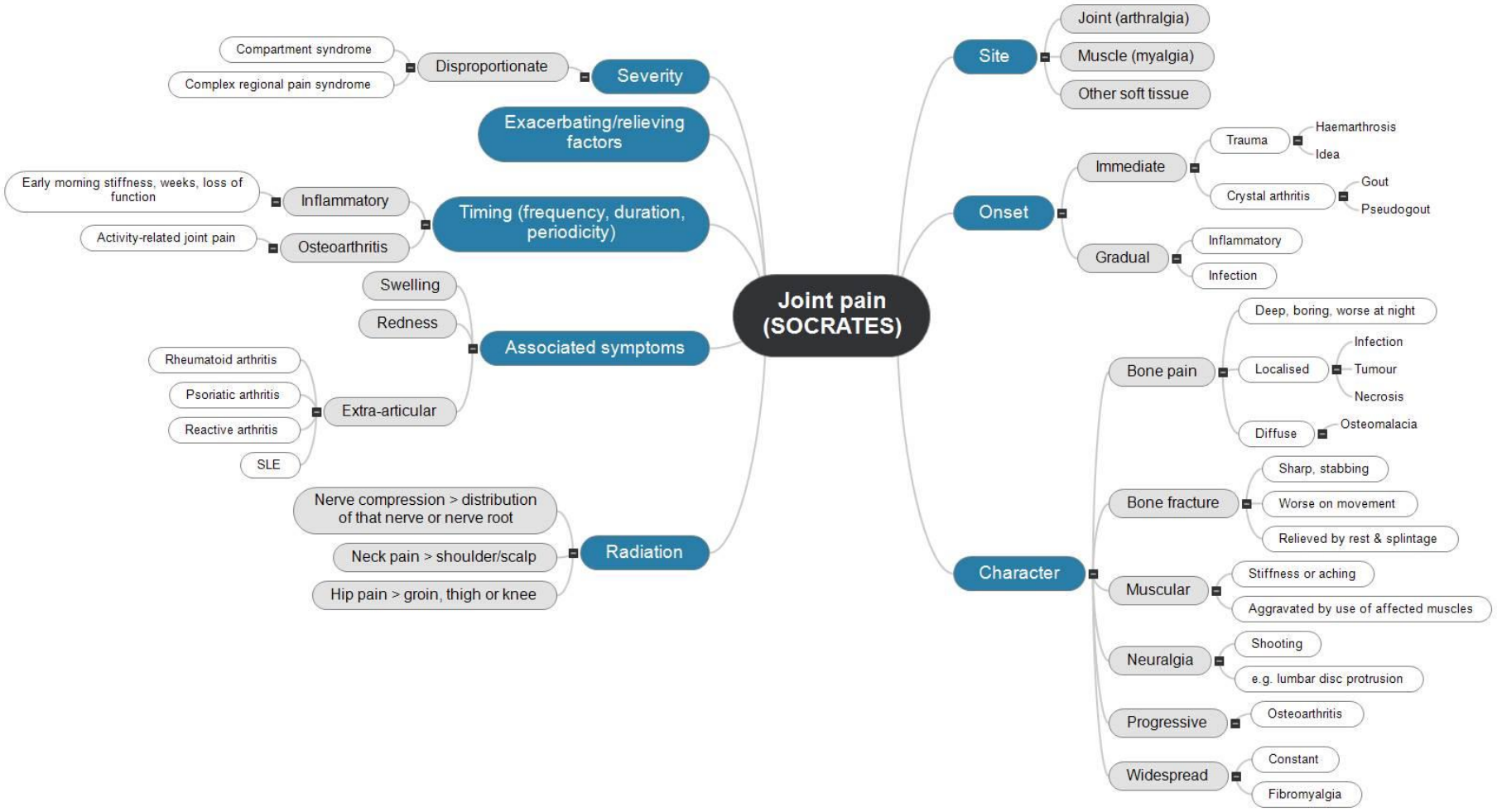
- Brainstorm symptoms and causes of joint pain (use the supplied mind map, if you find this helpful)
- How do you systematically consult with and examine a patient with joint pain?

Demonstrate and practise the GALS screen (ideally on volunteer patient) – please note that they will not have done this elsewhere and may not have done it in year one.

Suggested session plan

AM	PM	Activity	Details
0900	1400	**Introduction** 30 mins	●Take register ●Check in with your students ●Review the session plan and learning objectives ●Brainstorm topic
0930	1430	**Clinical interview** 45 mins	Students practise taking a clinical history with a patient and presenting this to the GP/group, considering clinical reasoning
1015	1515	**Break** 10 minutes	
1025	1525	**Examination** 45 mins	Students consider/practice relevant clinical examination and summarising findings to the GP/group
1110	1610	**Break** 10 minutes	
1120	1620	**Debrief** 30 minutes	●Discuss the day's cases & draw out learning points ●Discuss "my patient", as appropriate ●Tutor Feedback
1150	1650	**Wrap up** 10 mins	●Summarise learning points and identify new learning needs ●Plan for next time
1200	1700	**Close**	●Submit register

The above is only a guide, and GP teachers are at liberty to use the time flexibly, according to the patients met and group's needs.


Joint pain (SOCRATES)
Site
Joint (arthralgia)
Muscle (myalgia)
Other soft tissue
Onset
Immediate
Trauma
Haemarthrosis
Idea
Crystal arthritis
Gout
Pseudogout
Gradual
Inflammatory
Infection
Character
Bone pain
Deep, boring, worse at night
Localised
Infection
Tumour
Necrosis
Diffuse
Osteomalacia
Bone fracture
Sharp, stabbing
Worse on movement
Relieved by rest & splintage
Muscular
Stiffness or aching
Aggravated by use of affected muscles
Neuralgia
Shooting
e.g. lumbar disc protrusion
Progressive
Osteoarthritis
Widespread
Constant
Fibromyalgia
Radiation
Nerve compression > distribution of that nerve or nerve root
Neck pain > shoulder/scalp
Hip pain > groin, thigh or knee
Associated symptoms
Swelling
Redness
Extra-articular
Rheumatoid arthritis
Psoriatic arthritis
Reactive arthritis
SLE
Timing (frequency, duration, periodicity)
Inflammatory
Early morning stiffness, weeks, loss of function
Osteoarthritis
Activity-related joint pain
Exacerbating/relieving factors
Severity
Disproportionate
Compartment syndrome
Complex regional pain syndrome

Information given to students

History

Possible screening questions for musculoskeletal problems:

- Do you have any pain, swelling or stiffness in your muscles, joints or back?
- Can you dress yourself completely without any difficulty?
- Can you walk up and down stairs without any difficulty?

The main symptoms of musculoskeletal conditions are:

- pain
- stiffness, and
- joint swelling

As with all pain, it is important to record the site, character, radiation, and aggravating and relieving factors.

Try to broadly categorise the symptoms and signs (from the history and examination) by answering the following key questions:

- **Are the symptoms from the joint itself or the soft tissues (tendons/muscles)?** It is important to identify when pain may appear to arise from the joint but is in fact referred pain. For example, pain in the left shoulder referred from the diaphragm, the neck, or cardiac ischaemia.

- **Is the condition acute or chronic?** When did the symptoms start and how have they evolved? Was the onset sudden or gradual? Was the onset associated with a particular event – for example, trauma or infection? What treatments, if any, have been tried and did they make any difference?

- **Is the condition inflammatory or non-inflammatory?** Inflammatory joint conditions, such as rheumatoid arthritis, are associated with prolonged early morning stiffness that eases with activity. Non-inflammatory conditions, such as osteoarthritis are associated with pain more than stiffness, and the symptoms are usually exacerbated by activity.

- **What is the pattern of affected areas/joints?** How many joints are affected? Are they small or large joints? And is the pattern symmetrical or asymmetrical?

  Common patterns of joint involvement include:

  - Monoarticular – only one joint affected (e.g. septic arthritis)
  - Pauciarticular (or oligoarticular) – only a few joints affected (e.g. psoriatic arthritis)
  - Polyarticular – many joints affected (e.g. rheumatoid arthritis)
  - Axial – the spine is predominantly affected (e.g. ankylosing spondylitis)

- **What is the impact of the condition on the patient's life?** Understanding the impact of the disease on the patient is crucial to negotiating a suitable management plan. It may be easiest to get the patient to describe a typical day, from getting out of bed to washing, dressing, toileting etc. Potentially sensitive areas, such as hygiene or sexual activity, mood, depression and anxiety, should be approached with simple, direct, open questions.

- **Are other systems involved?** Inflammatory arthritis often involves other systems including the skin, eyes, lungs and kidneys. In addition, patients with inflammatory disease often suffer from general symptoms such as malaise, weight loss, mild fevers and night sweats.

The answers to these questions should enable you to produce a succinct summary of the patient's condition and would lead you to a narrower differential diagnosis. An example of a patient summary produced using this method might be:

> *"This patient has a chronic symmetrical inflammatory polyarthritis, mainly affecting the small joints of the hands and feet, which is causing pain, difficulty with dressing and hygiene, and is limiting their mobility."*

The below table (previously taken from https://versusarthritis.org/) provides a summary of typical features of some common musculoskeletal conditions and what to look for:

	Common inflammatory conditions				Common non-inflammatory conditions	
	Rheumatoid arthritis (RA)	Seronegative arthritides (e.g. reactive and psoriatic arthritis)	Gout	Polymyalgia rheumatica (PMR)	Osteoarthritis (OA)	Fibromyalgia
Onset	Usually acute or subacute	Acute/subacute Or chronic	Usually acute	Usually acute/ subacute	Chronic	Chronic
Typical age and gender	Female: male 3:1 Any age	Any age	Female: male 1:3 Very rare in pre-menopausal women	Female: male 2:1	Hand OA more common in females Usually age ≥45	Female: male 7:1 Age 30–50
Pattern of joint involvement	Usually symmetrical hands and feet	Can be monoarthritis or assymetrical polyarthritis or spine	Monoarthritis most commonly – MTP, ankle, knee	Usually shoulder and pelvic girdle	Normally polyarticular Hands, knees, hip and feet most common	Widespread pain
Other clues	Raynaud's syndrome Dry eyes and mouth Systemic upset	Tendon insertion pain (enthesitis) Psoriasis Inflammatory bowel disease Uveitis	Risk factors: obesity, alcohol, diuretic treatment	Severe stiffness May have overlap lap with temporal arteritis	Heberden's or Bouchard's nodes Crepitus	Poor quality of sleep Tender soft tissue 'trigger points' on examination Multiple symptoms

Examination

Watch this six minute video on GALS assessment (accessed 21/12/23) from Versus Arthritis UK before your session.

The GALS – Gait, Arms, Legs and Spine – screen consists of three simple questions and a brief examination developed to detect significant musculoskeletal abnormalities. It can also be used as a screening tool prior to a more focused examination.

Watch the patient's face throughout for signs of discomfort.

Gait

- Ask the patient to walk a few steps, turn and walk back. Observe the patient's gait for symmetry, smoothness and the ability to turn quickly.
- Observe from behind, from the side, and from in front for:
  - bulk and symmetry of the shoulder, gluteal, quadriceps and calf muscles
  - limb alignment
  - alignment of the spine
  - equal level of the iliac crests
  - ability to fully extend the elbows and knees
  - popliteal swelling
  - abnormalities in the feet such as an excessively high or low arch profile, clawing/ retraction of the toes and/or presence of hallux valgus.

Arms

- Ask the patient to put their hands behind their head. This assesses:
  - shoulder abduction (the first movement affected by rotator cuff problems)
  - external rotation (the first movement affected by glenohumeral problems) and
  - elbow flexion.
- Ask the patient to straighten out their arms completely to assess full elbow extension (the first movement affected by elbow problems).
- Observe the backs of the hands for joint swelling and deformity. Inspect the nails and skin at the same time.
- Ask the patient to turn their hands over (the movement of supination assesses both wrist and elbow movement).
- Look at the palms for muscle bulk and for any visual signs of abnormality.
- Ask the patient to make a fist. Visually assess power grip, hand and wrist function, and range of movement in the fingers.
- Ask the patient to squeeze your fingers. Assess grip strength.
- Ask the patient to bring each finger in turn to meet the thumb. Assess fine precision pinch (which is important functionally).
- Gently squeeze across the metacarpophalangeal joints to check for tenderness suggesting inflammation within the joints.

Legs

- With the patient lying on the couch, assess full flexion and extension of both knees, feeling over the tibiofemoral joint line for crepitus during the movements.
- With the hip and knee flexed to 90°, holding the knee and ankle to guide the movement, assess internal rotation of each hip in flexion (this is often the first movement affected by hip problems).
- Perform a check for a knee effusion using either a patellar tap or a sweep/bulge test:
- Inspect the feet for localised or general swelling, deformity such as hallux valgus, clawing of the toes, and callosities on the soles which typically occur under the metatarsophalangeal joints.
- Squeeze across the metatarsophalangeal joints to check for tenderness suggesting inflammatory joint disease.

Spine

- With the patient standing, inspect the spine for evidence of:
  - scoliosis (curve of the spine in the coronal plane)
  - abnormal lordosis (excessive curve in the spine in a sagittal plane, convexity forwards) or
  - kyphosis (excessive flexed curvature of the spine in a sagittal plane).

  Note any obvious asymmetry by looking from behind at the shoulders, pelvis, backs of the knees and then the ankles.

- Ask the patient to tilt their head to each side, bringing the ear towards the shoulder. This assesses lateral flexion of the neck, which is sensitive in the detection of early neck problems.
- Ask the patient to bend to touch their toes. This movement is the first movement affected by lumbar spinal problems and is important functionally (for dressing). However, it can be achieved by relying on good hip flexion, so it is important to palpate for normal movement of the vertebrae. Assess lumbar spine flexion by placing two or three fingers on the lumbar vertebrae. Your fingers should move apart on flexion and back together on extension.

Sources, resources and references

Versus Arthritis UK – Musculoskeletal history (accessed 21/12/23)

Doherty M, Dacre J, Dieppe P and Snaith M, 1992. The 'GALS' locomotor screen. *Annals of the Rheumatic Diseases*, 51(10), pp.1165-1169.