

SPONDYLOARTHRITIS AND INFLAMMATORY BACK PAIN

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Learning outcomes

1. Learn to recognise inflammatory back pain and the differences between that and mechanical back pain.
2. Understand the various co-morbidities associated with axial spondyloarthritis (SpA).
3. Learn how to investigate possible cases of SpA and which radiological investigations are the most useful.
4. Understand the delay in diagnosis of SpA and learn how to reduce this.

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Spondyloarthritis: What is it?

Spondyloarthritis is / are a group of inflammatory conditions that have a range of manifestations and are as common as rheumatoid arthritis.

Spondyloarthritis may be predominantly:

AXIAL: SPINE

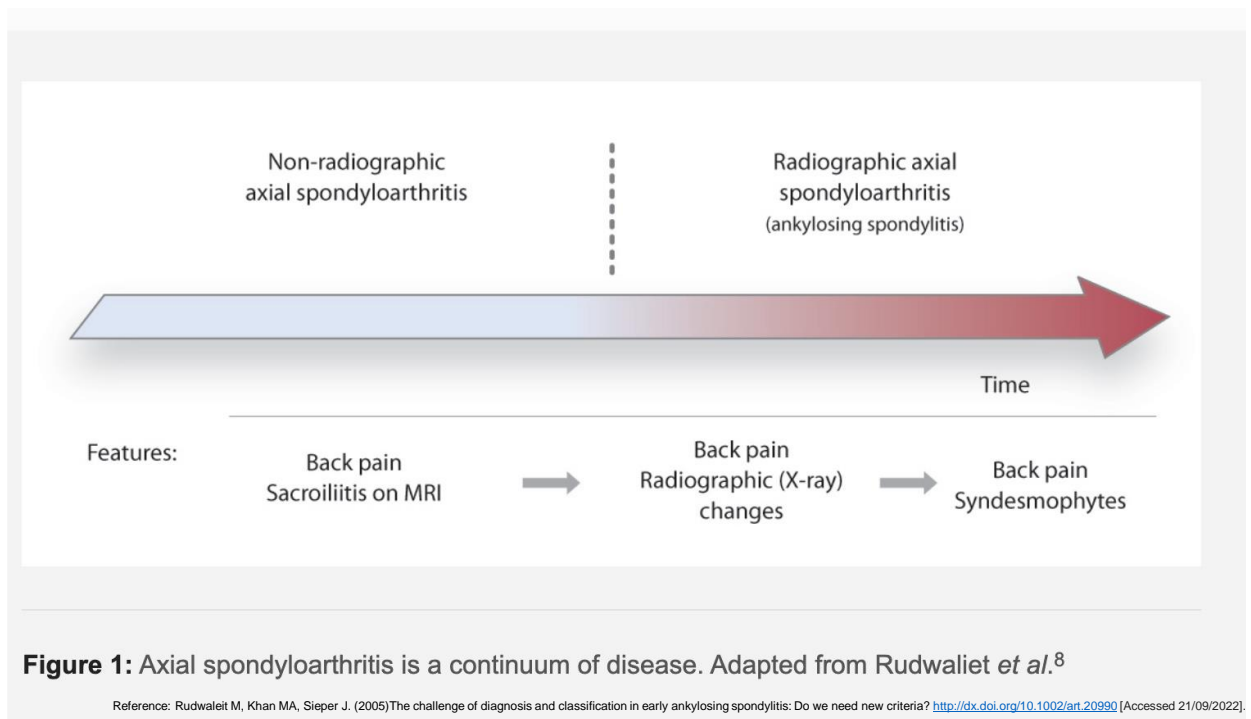
- radiographic axial spondyloarthritis (ankylosing spondylitis)
- non-radiographic axial spondyloarthritis

PERIPHERAL:

- psoriatic arthritis
- reactive arthritis
- enteropathic spondyloarthritis; crohns / ulcerative colitis

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Prevalence

AxSpA is estimated to affect ~1 in 200 adults in the UK - twice the prevalence of multiple sclerosis or Parkinson's disease.

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References: 1) Hamilton L., Macgregor A., et al (2015). The prevalence of axial spondyloarthritis in the UK: a cross-sectional cohort study. *BMC Musculoskeletal Disorders* <https://bmcmusculoskeletaldisord.biomedcentral.com/articles/10.1186/s12891-015-0853-2> [Accessed 21/09/22].
2) National Axial Spondyloarthritis Society, (2019) Facts and Figures. <https://nass.co.uk/about-axial-spondyloarthritis/as-facts-and-figures/> [Accessed 21/09/2022].

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Spondyloarthritis

- There is no diagnostic blood test
- Diagnosis is on the presentation of symptoms and co-morbidities and family history
- Inflammatory markers may not be raised
- **Inflammatory back pain** is one of the most important features
- Inflammatory 'vs' mechanical

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Mechanical back pain and inflammatory back pain

- Back pain is very common: 60-80% of the UK population report back pain at some point in their life.
- Back pain is not only a major source of pain and disability, but has other secondary effects on patients' quality of life and is also detrimental to society as a whole.
- Chronic back pain is defined as pain which occurs for 3 months. Identifying back pain as acute or chronic is one of the key processes in determining the source of the pain.
- Mechanical back pain, arises from structural changes which may be in the spinal joints, vertebrae or soft tissues, can be chronic but is usually acute in onset and often self-limiting.
- Inflammatory back pain due to an underlying inflammatory disease such as inflammatory arthritis, results in chronic back pain lasting 3 months.

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References: 1) Waddell G, et al. *Occup Med* 2001;51:124–135. 2. Dunn KM and Croft, PR. *Spine* 2005;16:1887–1892; 2) Sieper J, et al. *Ann Rheum Dis* 2009;68:784–788.

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Table 1: Inflammatory Back Pain Criteria²

Feature	Odds Ratios
Insidious onset	12.7
Pain at night (with improvement upon getting up)	20.4
Age at onset <40 years	9.9
Improvement with exercise	23.1
No improvement with rest	7.7
<p>Best trade-off if four or more of the above five parameters are fulfilled (Sensitivity 79.6% & Specificity 2.4%)*</p> <p>Positive Likelihood Ratio = $79.6/[100-72.4] = 2.9$</p>	
<p>Source: Seiper J, van der Heijde D, Landewé R. et al. New criteria for inflammatory back pain in patients with chronic back pain: A real patient exercise by experts from the Assessment of SpondyloArthritis International Society (ASAS). <i>Ann Rheum Dis.</i> 2009;68(6):784–788.</p>	

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Co-morbidities

- KNOW THE EXTRA-ARTICULAR MANIFESTATIONS OF AXIAL SPA.
- Axial SpA is associated with a range of extra-articular manifestations, or EAMs, including acute anterior uveitis, psoriasis, and inflammatory bowel disease (ulcerative colitis and Crohn's disease). Dactylitis and enthesitis are also EAMs of axial SpA.
- Presence or prior bouts/ history of these conditions could indicate that a patient's back pain is more likely to be inflammatory or axial SpA related. A family history of the above conditions, or of spondyloarthritis specifically, should also be considered.

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Diagnosis of Axial Spondyloarthritis

ASAS classification for axial SpA:

Table 3. ASAS Classification Criteria for Axial Spondyloarthritis⁶

ASAS Classification Criteria for Axial SpA (to be applied in patients with chronic back pain & age at onset of back pain younger than 45 years)	
<p>≥ 1 SpA feature* plus sacroiliitis**</p> <p>* SpA features</p> <ul style="list-style-type: none"> - IBP - arthritis - enthesitis - uveitis - dactylitis - psoriasis - Crohn's/colitis - Good response to NSAIDs - Family history for SpA - HLA-B27 	<p>or</p> <p>HLA-B27 plus ≥ 2 other SpA features</p>
	<p>Sensitivity 82.9%</p> <p>Specificity 84.4%</p>
	<p>** inflammation highly compatible with sacroiliitis on MRI or definite radiographic sacroiliitis according to modified NY criteria</p>

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Reference: Adapted from BMJ Journals. (2019) The development of Assessment of Spondyloarthritis international Society classification criteria for axial spondyloarthritis (part II): validation and final selection. <https://ard.bmj.com/content/68/6/777>. [Accessed 20/09/2022].

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HLAB27

- One of the major histocompatibility antigens found on the surface of all cells
- Incidence varies across the world
- In the UK approximately 10% of the population are HLAB27 positive
- BUT only a small percentage of these will have SpA
- HLAB27 is a specialist test and only useful in patients who have inflammatory back pain or other features of SpA.

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Lab parameters

HLA-B27

The most important diagnostic tests in the Caucasian population due to high **sensitivity** (>80% for axial SpA, lower for peripheral SpA) and **specificity** (90% in the central European population based on the estimated background prevalence of HLA-B27 of about 9%).

Acute phase reactants

CRP and ESR as markers of systemic inflammation markers

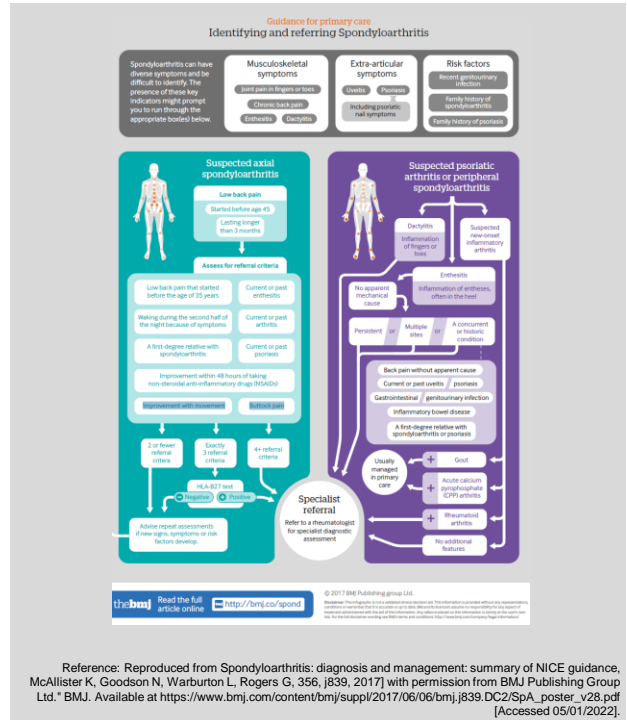
CRP is elevated 50–60% of the patients with **radiographic** axial SpA and 30–40% of the patients with **non-radiographic** axial SpA only.

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Axial and Peripheral Spondyloarthropathies (NICE NG65 Feb. 2017)

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Available at: https://nass.co.uk/wp-content/uploads/2020/07/200730-Gold-Standard-Consultation-Document-FINAL-JB_final.pdf.

Time to act

- The current time to diagnosis of axial SpA in the UK averages 8.5 years from symptom onset. This delay is unacceptable and has serious consequences for the patient.
- The Axial SpA campaign proposes a roadmap for reducing the time from symptom onset to diagnosis to just one year.
- This is a call for support, to act on Axial SpA.



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Reference: NASS. Act on axial SpA: A Gold Standard time to diagnosis. <https://www.actonaxialspa.com/healthcare-professional-gold-standard-overview/>. [Accessed 20/09/2022].

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Structure of a GP consultation



- ✓ Exclude red flags (cancer, infection, fracture, cauda equina)
- ✓ **Exclude inflammatory back pain**
- ✓ Differentiate 'nerve' pain (sciatica) from referred leg pain

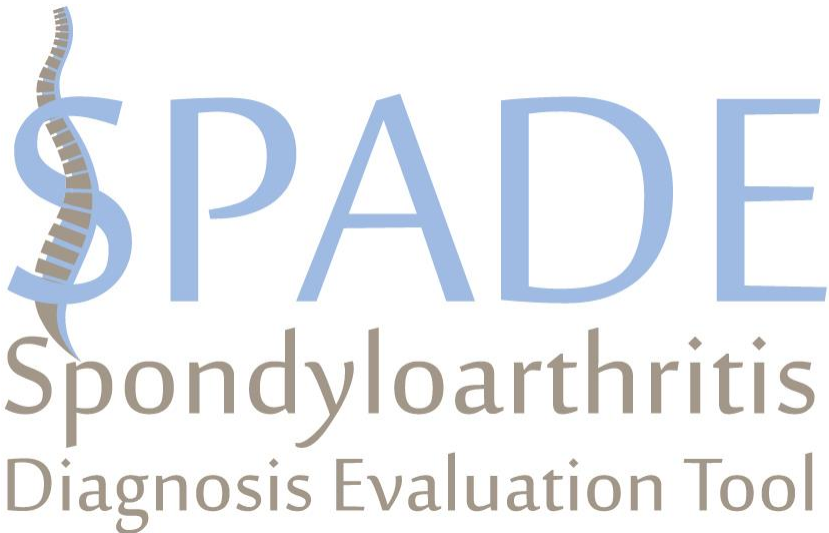


- ✓ Stratify risk of disability (yellow flags)
- ✓ Manage the patient as per NICE guidelines

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Reference: NICE (2020) Low back pain and sciatica in over 16s: assessment and management [NG59] <https://www.nice.org.uk/guidance/ng59> [Accessed: 21/12/2021].

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SPADE

Spondyloarthritis Diagnosis Evaluation Tool

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SPADE tool

- The SPADE tool (Spondyloarthritis Diagnosis Evaluation tool: www.spadetool.co.uk) was developed by Dr Raj Sengupta and team, based on research by Martin Rudwaleit and Ernst Feldtkeller*, to assist medical professionals in primary care in defining the likelihood that a patient has axial spondyloarthritis (axial SpA).
- When a patient with chronic back pain aged <45 years presents with no evidence of axial SpA changes on X-ray, simply access the tool online and tick the axial SpA features that apply, to determine the likelihood of axial SpA.

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SPADE tool

- The tool is easy to use and can be extremely helpful when considering a referral to rheumatology for a patient with potential axial SpA.
- It is important to recognise that the website cannot be used to diagnose axial SpA, as the tool does not take into account the added utility of negative findings and exclusion of differential diagnoses.
- We encourage you to try utilising the tool whilst assessing your next patient with potential axial spondyloarthritis, and hope that you find it useful.

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SPADE tool

In your patient with chronic back pain, tick all the symptoms that apply to determine the likelihood of axial spondyloarthritis:

Inflammatory type of back pain

Heel pain (enthesitis)

Peripheral arthritis

Dactylitis

Iritis or anterior uveitis

Psoriasis

IBD (Crohn's disease or ulcerative colitis)

Positive family history of axial SpA, reactive arthritis, psoriasis, IBD or anterior uveitis

Good response to NSAIDs

Raised acute-phase reactants (CRP/ESR)

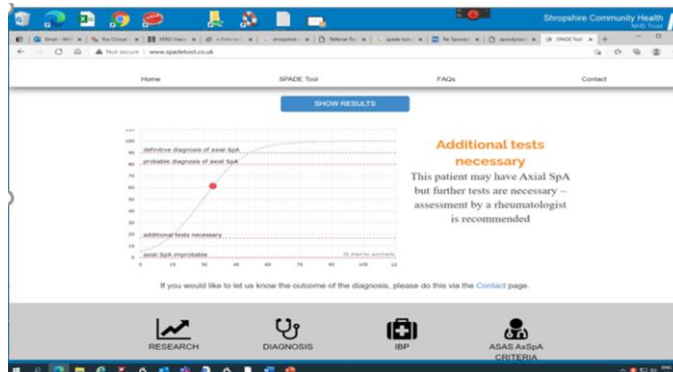
HLAB27

Sacroiliitis shown by MRI

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Example of how the results from the SPADE tool appear



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Spinal Mobility Measurements

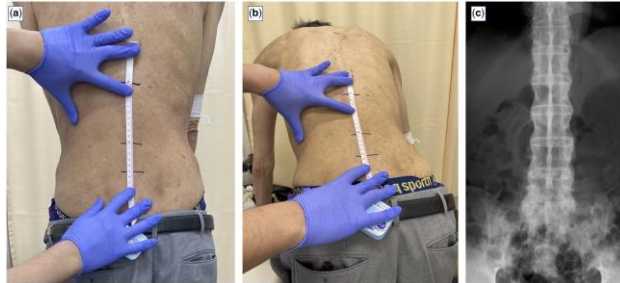
- Schobers test; is it useful? Measure of spinal flexion
- Cross-sectional use of SMMs, at the group level, is informative in patients with early axial spondyloarthritis. However, the high variation of SMMs over time impairs their use, at the individual patient level.

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Reference: Marques ML, Ramiro S, Goupille P, et al. Measuring spinal mobility in early axial spondyloarthritis: does it matter? *Rheumatology (Oxford)*. 2019;58:1597–1606.

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Figure 1 (a) The lumbosacral junction, a point 10 cm above it, and another point 5 cm below it were marked in the standing position. Normal range would be more than 5cm increase; this is abnormal example.



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Reference: QJM: An International Journal of Medicine, Volume 115, Issue 3. (2022). The modified Schober's test and ankylosing spondyloarthritis. <https://doi.org/10.1093/qjmed/hcac035>. [Accessed 20/09/2022].

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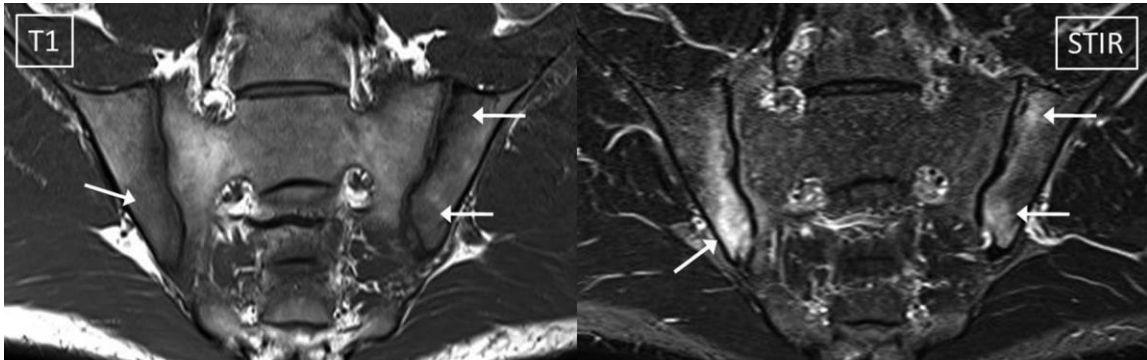
Requesting MRI

Rec1	When requesting an MRI for suspected axial SpA, imaging of both the SIJs and the spine is recommended.
Rec2	T1-weighted and fat-suppressed, fluid-sensitive sequences (including STIR, fat-saturated T2 or Dixon methods) are recommended for suspected axial SpA.
Rec3	The minimum protocol when requesting an MRI for suspected axial SpA should include sagittal images of the spine with extended lateral coverage and images of the SIJs that are in an oblique coronal plane to the joint.

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Reference: Bray TJP, Jones A, et al. (2019). Recommendations for acquisition and interpretation of MRI of the spine and sacroiliac joints in the diagnosis of axial spondyloarthritis in the UK. <https://doi.org/10.1093/rheumatology/kez173> [Accessed 20/09/2022].

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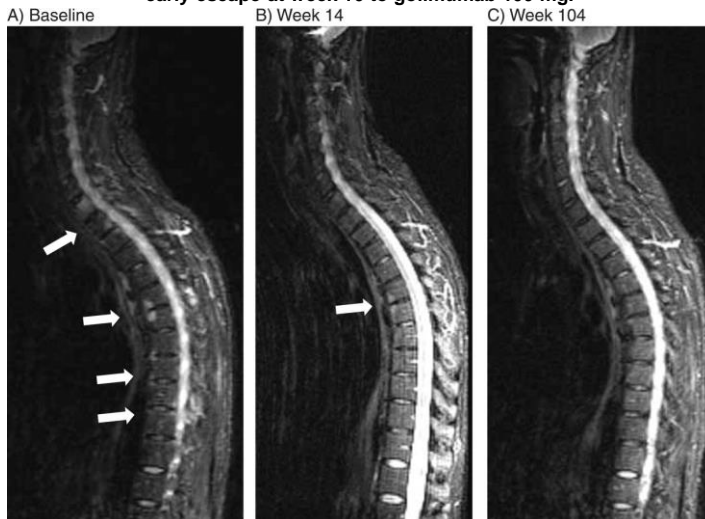


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Reference: Braun, J et al. (2012) Golimumab reduced spinal inflammation in ankylosing spondylitis: MRI results of the randomised, placebo-controlled GO-RAISE study. <https://ard.bmj.com/content/annrheumdis/71/6/878.full.pdf> [Accessed 21/09/2022].

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Magnetic resonance images of the cervical (C) and thoracic (T) spine at baseline (Panel A), week 14 (Panel B) and week 104 (Panel C) of a patient who received golimumab 50 mg followed by early escape at week 16 to golimumab 100 mg.



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Reference: Braun, J et al. (2012) Golimumab reduced spinal inflammation in ankylosing spondylitis: MRI results of the randomised, placebo-controlled GO-RAISE study. <https://ard.bmj.com/content/annrheumdis/71/6/878.full.pdf> [Accessed 21/09/2022].

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Resources

BSR resources:

- Axial spondyloarthritis eLearning module including overview webinar, eLearning case and journal articles
- Axial spondyloarthritis podcast (part of our Talking Rheumatology podcast series) - can be found on all podcast sites
- Spondyloarthropathy course - next dates TBC
- BSR guideline: Axial spondyloarthritis

Other resources:

- [Homepage | National Axial Spondyloarthritis Society \(nass.co.uk\)](http://nass.co.uk)
- [Spondyloarthritis: diagnosis and management: summary of NICE guidance | The BMJ](#)

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Conclusion

- Axial Spondyloarthropathy can present as inflammatory back pain
- Be alert for inflammatory back pain in young people presenting with back pain
- SpA is more common in the presence of certain comorbidities; psoriasis, IBD, uveitis
- SpA can not be diagnosed on a normal MRI scan
- Refer to rheumatology for diagnosis
- There is an 8.5 year delay in diagnosis in the UK
- SpA is treatable

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Upcoming MSK training courses

Details of upcoming MSK online webinars and training courses:

- Is it inflammatory arthritis or fibromyalgia syndrome or both? webinar: Thursday 20 October 6:30-8:30pm, £25
- Core Skills in MSK Care digital course: Thursday 2, 9, 16, 23 November 6:30-8:30pm, £135
- Managing chronic pain in primary care webinar: Wednesday 30 November 6:30-8:30pm, £25
- Core Skills in MSK Care digital course: Wednesday 2, 9, 16, 23 March 2023 6:30-8:30pm, £135
- For more information about the courses please visit the Versus Arthritis stand or visit www.versusarthritis.org/coreskills



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Thank you...

Any questions?

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