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MED 610

RHEUMATOLOGY AND CARE OF THE ELDERLY

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Course code: MED 610

Course title: Rheumatology and Care of the Elderly

Course credit load: 2 Units

Series 1: The Seronegative and Seropositive Arthritides

- **Part 1.1: Approach to the Patient with Joint Disease**
  - Sub Part 1.1.1: Clinical assessment of the patient with joint pain
  - Sub Part 1.1.2: Pattern recognition in arthritis: number and distribution of joints involved
  - Sub Part 1.1.3: Investigations in rheumatology
- **Part 1.2: Classification of Arthritis: Seronegative versus Seropositive**
  - Sub Part 1.2.1: Defining seronegative and seropositive arthritis
  - Sub Part 1.2.2: Rheumatoid factor and anti-CCP antibodies
  - Sub Part 1.2.3: HLA-B27 and the seronegative spondyloarthropathies
- **Part 1.3: The Seronegative Spondyloarthropathies**
  - Sub Part 1.3.1: Shared features of the seronegative spondyloarthropathies
  - Sub Part 1.3.2: Psoriatic arthritis
  - Sub Part 1.3.3: Reactive arthritis
- **Part 1.4: Principles of Management of Inflammatory Arthritis**
  - Sub Part 1.4.1: General principles of pharmacological management
  - Sub Part 1.4.2: Disease-modifying antirheumatic drugs
  - Sub Part 1.4.3: The multidisciplinary team in rheumatology

Introduction

This opening Series of **Rheumatology and Care of the Elderly** builds the foundational framework this genuinely broad specialty rests on, working through the structured clinical

approach to joint disease before introducing the fundamental classification distinguishing **seronegative** from **seropositive arthritis**, a distinction that shapes almost every subsequent diagnostic and management decision covered across the remainder of this course.

The aim of this Series is to equip you with the ability to clinically assess a patient with joint disease using structured pattern recognition, describe the investigations used in rheumatology, distinguish seronegative from seropositive arthritis including the roles of rheumatoid factor, anti-CCP antibodies, and HLA-B27, describe the shared features of the seronegative spondyloarthropathies including psoriatic and reactive arthritis, and describe the general principles of pharmacological management including disease-modifying antirheumatic drugs and multidisciplinary care.

This Series opens with the **approach to the patient with joint disease**, moves through the **classification of arthritis** and **the seronegative spondyloarthropathies**, and closes with **principles of management of inflammatory arthritis**.

Series Learning Outcomes

At the end of this Series, you should be able to:

- **SLO 1.1:** describe the clinical assessment and pattern recognition approach to joint disease
- **SLO 1.2:** describe the investigations used in rheumatology
- **SLO 1.3:** distinguish seronegative from seropositive arthritis
- **SLO 1.4:** describe rheumatoid factor, anti-CCP antibodies, and HLA-B27
- **SLO 1.5:** describe the shared features of the seronegative spondyloarthropathies
- **SLO 1.6:** describe psoriatic arthritis and reactive arthritis
- **SLO 1.7:** describe the general principles of pharmacological management of inflammatory arthritis
- **SLO 1.8:** discuss the role of disease-modifying antirheumatic drugs and the multidisciplinary team

1.1 Approach to the Patient with Joint Disease

1.1.1 clinical assessment of the patient with joint pain

A structured history distinguishing inflammatory from mechanical pain

A thorough rheumatological history distinguishes **inflammatory joint pain**, characteristically worse with rest and improving with movement, accompanied by prolonged early morning stiffness lasting more than thirty minutes, from **mechanical joint pain**, worse with activity and relieved by rest, with only brief morning stiffness, a genuinely fundamental distinction directly shaping the subsequent differential diagnosis and investigation pathway.

Examination systematically assesses each affected joint for swelling, warmth, tenderness, and restricted range of movement, alongside a broader systemic examination for extra-articular features, since many rheumatological conditions genuinely extend well beyond the joints themselves, affecting skin, eyes, lungs, and other organ systems in patterns covered progressively across this course.

Fill in the blank: Inflammatory joint pain is accompanied by prolonged early morning stiffness lasting more than _____ minutes.

1.1.2 pattern recognition in arthritis: number and distribution of joints involved

The genuinely powerful diagnostic value of joint count and pattern

Arthritis is classified by the number of joints affected, **monoarthritis**, a single joint, **oligoarthritis**, two to four joints, and **polyarthritis**, five or more joints, and by symmetry, whether the same joints are affected on both sides of the body, a classification framework carrying genuinely powerful diagnostic value, since specific conditions characteristically produce a specific, recognisable pattern of joint involvement.

Symmetrical polyarthritis affecting the small joints of the hands classically suggests rheumatoid arthritis, discussed in depth in the following Series of this course, while **asymmetrical oligoarthritis**, particularly affecting larger joints, more typically suggests a seronegative spondyloarthropathy, discussed later in this Series, illustrating how genuinely far a confident diagnosis can be narrowed before any laboratory investigation is even performed.

Fill in the blank: Symmetrical polyarthritis affecting the small joints of the hands classically suggests rheumatoid _____.

1.1.3 investigations in rheumatology

Confirming, and characterising, the clinical impression

Inflammatory markers, erythrocyte sedimentation rate and C-reactive protein, provide a non-specific but genuinely useful measure of overall inflammatory activity, while **specific autoantibody testing**, including rheumatoid factor, anti-CCP antibodies, and antinuclear antibody, discussed further later in this Series and course, helps characterise the specific underlying condition once the clinical pattern has narrowed the differential diagnosis appropriately.

Joint imaging, including plain radiography for established structural change, and ultrasound or magnetic resonance imaging for detecting active synovitis and early erosive change before it becomes visible on plain film, alongside **synovial fluid analysis** where a joint effusion is genuinely accessible for aspiration, together complete the structured investigation pathway this Part introduces for confident rheumatological diagnosis.

Fill in the blank: Ultrasound or magnetic resonance imaging can detect active synovitis and early erosive change before it becomes visible on plain _____.

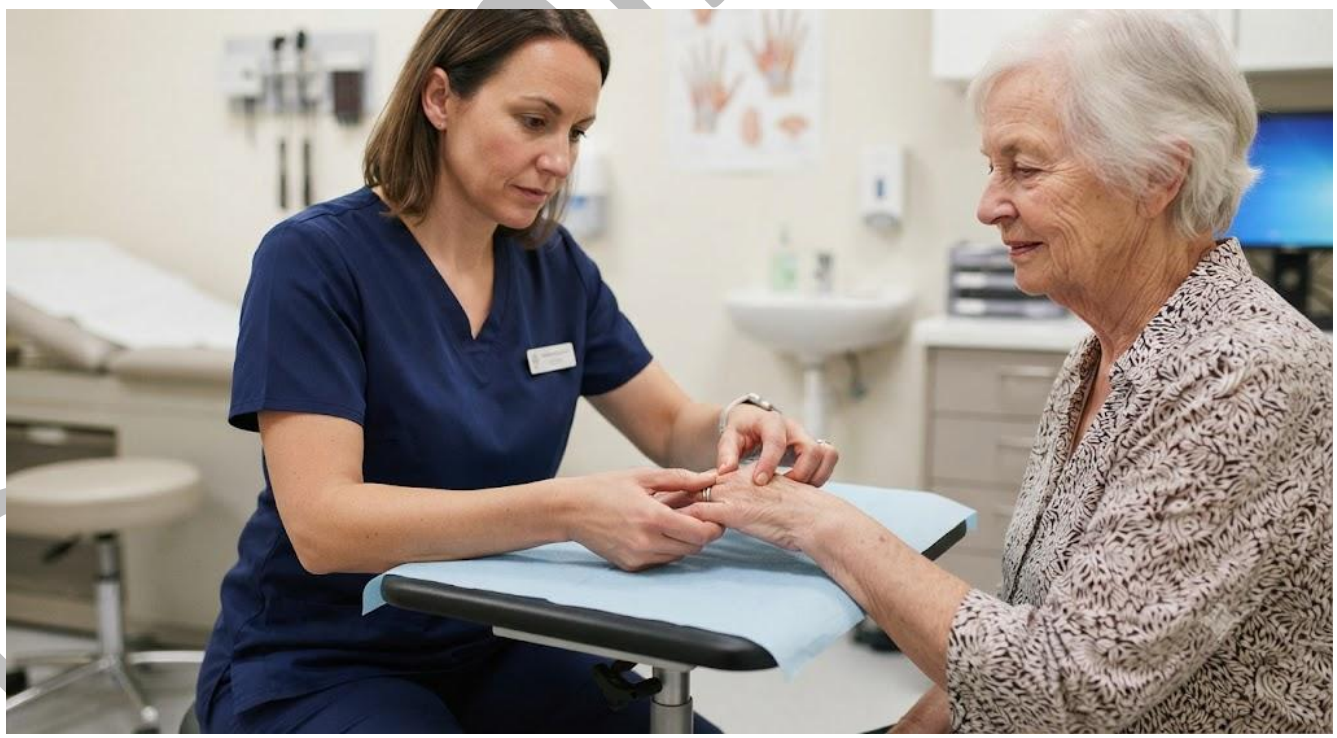

Figure 1.1: A clinician examining a patient's hand joints for swelling and tenderness.

Pilot questions 1.1

1. Distinguish inflammatory from mechanical joint pain. (Linked to SLO 1.1)
2. Define monoarthritis, oligoarthritis, and polyarthritis. (Linked to SLO 1.1)
3. Explain the diagnostic value of symmetrical versus asymmetrical joint involvement. (Linked to SLO 1.1)
4. Describe the role of inflammatory markers in rheumatological investigation. (Linked to SLO 1.2)
5. Explain why imaging can detect disease activity before it is visible on plain radiography. (Linked to SLO 1.2)

1.2 Classification of Arthritis: Seronegative versus Seropositive

1.2.1 defining seronegative and seropositive arthritis

A classification built around a specific antibody result

Seropositive arthritis describes inflammatory joint disease associated with a positive rheumatoid factor or anti-CCP antibody, most classically rheumatoid arthritis, while **seronegative arthritis** describes inflammatory joint disease occurring in the absence of these specific antibodies, a classification that, while genuinely useful, does not imply the seronegative conditions are any less genuinely inflammatory or clinically significant than their seropositive counterparts.

The **seronegative spondyloarthropathies**, a specific group of related conditions sharing genuinely distinct clinical, genetic, and pathophysiological features discussed further later in this Series, form the principal category of seronegative arthritis, and understanding this shared family relationship, rather than treating each condition as entirely separate and unrelated, genuinely aids confident clinical recognition across this whole group of conditions.

Fill in the blank: Seropositive arthritis is associated with a positive rheumatoid factor or anti-CCP _____.

1.2.2 rheumatoid factor and anti-ccp antibodies

Two related but genuinely distinct laboratory markers

Rheumatoid factor, an antibody directed against the constant region of immunoglobulin G, is positive in the majority, though genuinely not all, patients with rheumatoid arthritis, and can also be positive in several other conditions and, at low titre, in a proportion of the healthy general population, meaning it is genuinely neither perfectly sensitive nor perfectly specific for rheumatoid arthritis considered in isolation.

Anti-cyclic citrullinated peptide antibody, commonly abbreviated as anti-CCP, offers genuinely superior specificity for rheumatoid arthritis compared with rheumatoid factor alone, and its presence, particularly at high titre, carries additional prognostic significance, associated with more aggressive, erosive disease, making combined testing of both antibodies, rather than either alone, the genuinely preferred approach in modern rheumatological practice.

Fill in the blank: Anti-CCP antibody offers genuinely superior _____ for rheumatoid arthritis compared with rheumatoid factor alone.

1.2.3 hla-b27 and the seronegative spondyloarthropathies

A genetic marker, not a diagnostic test in itself

HLA-B27, a specific human leukocyte antigen variant, shows a genuinely strong statistical association with the seronegative spondyloarthropathies, particularly ankylosing spondylitis discussed in the following Series of this course, though this association is genuinely probabilistic rather than deterministic, since the great majority of HLA-B27 positive individuals in the general population never actually develop a spondyloarthropathy.

Consequently, HLA-B27 testing should be interpreted as supportive evidence within a genuinely broader clinical context, rather than as a standalone diagnostic test, since a positive result in a patient without a genuinely suggestive clinical picture carries limited diagnostic value, while a negative result does not entirely exclude a seronegative spondyloarthropathy in a patient with a genuinely convincing clinical presentation.

Fill in the blank: HLA-B27 testing should be interpreted as supportive evidence within a genuinely broader clinical _____.

Table 1.1: Comparing seronegative and seropositive arthritis

Feature	Seropositive arthritis	Seronegative arthritis

Key antibody	Rheumatoid factor or anti-CCP positive	Antibody negative
Classic example	Rheumatoid arthritis	Ankylosing spondylitis
Relevant genetic marker	Not a defining feature	Frequently HLA-B27 associated

Pilot questions 1.2

1. Distinguish seropositive from seronegative arthritis. (Linked to SLO 1.3)
2. Describe rheumatoid factor and its limitations. (Linked to SLO 1.4)
3. Explain the advantage of anti-CCP antibody testing over rheumatoid factor alone. (Linked to SLO 1.4)
4. Describe HLA-B27 and its association with the spondyloarthropathies. (Linked to SLO 1.4)
5. Explain why HLA-B27 should not be used as a standalone diagnostic test. (Linked to SLO 1.4)

1.3 The Seronegative Spondyloarthropathies

1.3.1 shared features of the seronegative spondyloarthropathies

A genuine family of related conditions

The seronegative spondyloarthropathies share several genuinely characteristic features, including **enthesitis**, inflammation at the site where tendons and ligaments attach to bone, **dactylitis**, diffuse swelling of an entire digit sometimes described as a sausage digit, axial skeletal involvement affecting the spine and sacroiliac joints, and a genuine association with HLA-B27 already discussed in the previous Part, together forming a recognisable clinical family despite each specific condition's own distinct additional features.

Extra-articular features shared across this group include anterior uveitis, inflammation of the eye, and, in some conditions, a genuine association with inflammatory bowel disease already discussed in an earlier course of this programme, and recognising this shared family pattern, rather than each condition in complete isolation, genuinely aids confident clinical recognition when a patient presents with a combination of these characteristic features.

Fill in the blank: Dactylitis is diffuse swelling of an entire digit, sometimes described as a sausage _____.

1.3.2 psoriatic arthritis

Joint inflammation accompanying, or preceding, skin disease

Psoriatic arthritis, occurring in a genuinely meaningful proportion of patients with psoriasis, presents with a genuinely varied pattern of joint involvement, ranging from asymmetrical oligoarthritis, the most common pattern, through symmetrical polyarthritis resembling rheumatoid arthritis, to predominantly axial disease resembling ankylosing spondylitis, and distinctive **distal interphalangeal joint** involvement, a pattern genuinely characteristic of this specific condition.

Nail changes, including pitting and onycholysis, separation of the nail from the underlying nail bed, are genuinely common in psoriatic arthritis and should be actively examined for, since joint symptoms can occasionally precede visible skin psoriasis, making a careful search for even subtle nail or skin changes genuinely important in any patient presenting with a joint pattern suggestive of this specific condition.

Fill in the blank: Onycholysis is separation of the nail from the underlying nail _____, a common finding in psoriatic arthritis.

1.3.3 reactive arthritis

Joint inflammation triggered by a preceding infection elsewhere

Reactive arthritis, an asymmetrical oligoarthritis typically affecting the lower limbs, develops following a preceding genitourinary or gastrointestinal infection, typically within a few weeks, reflecting an abnormal immune response to the triggering infection rather than direct joint infection itself, a genuinely important distinction from septic arthritis, direct bacterial infection of the joint, which demands an entirely different, urgent management approach.

The classic triad associated with reactive arthritis, though genuinely present together in only a minority of affected patients, comprises arthritis, conjunctivitis, and urethritis, and, while the condition is frequently self-limiting, resolving over weeks to months, a proportion of patients experience recurrent episodes or progress to a more chronic pattern of joint disease requiring ongoing management.

Fill in the blank: Reactive arthritis reflects an abnormal immune response to a triggering infection rather than direct joint _____.

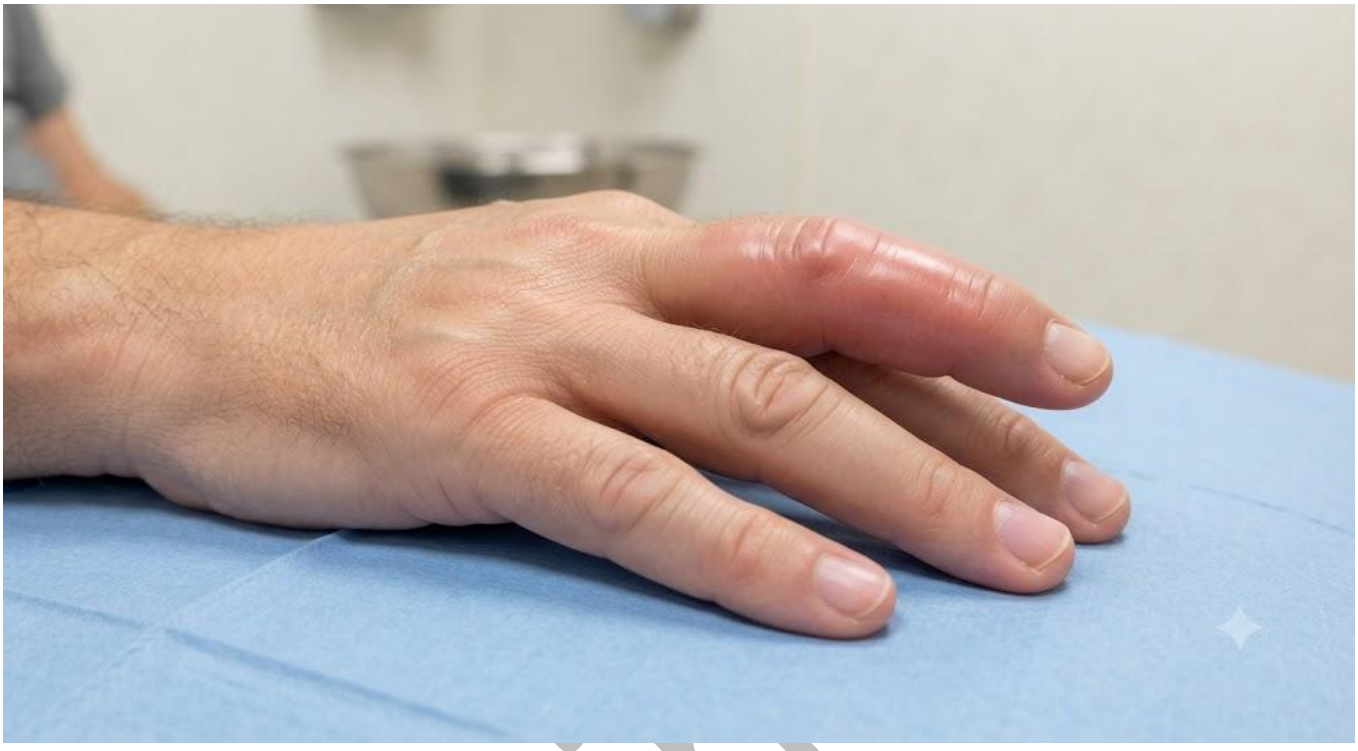

Figure 1.2: Dactylitis, diffuse sausage-like swelling of a finger.

Pilot questions 1.3

1. List the shared features of the seronegative spondyloarthropathies. (Linked to SLO 1.5)
2. Describe enthesitis. (Linked to SLO 1.5)
3. Describe the range of joint patterns seen in psoriatic arthritis. (Linked to SLO 1.6)
4. Describe the nail changes associated with psoriatic arthritis. (Linked to SLO 1.6)
5. Distinguish reactive arthritis from septic arthritis. (Linked to SLO 1.6)

1.4 Principles of Management of Inflammatory Arthritis

1.4.1 general principles of pharmacological management

Controlling symptoms while protecting the joint long-term

Nonsteroidal anti-inflammatory drugs provide genuine symptomatic relief of pain and stiffness in inflammatory arthritis, and **corticosteroids**, used either short-term during a

significant flare or, less commonly, as longer-term low-dose therapy, offer more rapid, powerful anti-inflammatory effect, though genuinely carry a meaningful side effect burden with prolonged use that must be actively weighed against their symptomatic benefit.

Neither of these symptomatic treatments genuinely halts the underlying disease process or prevents progressive joint damage, meaning **disease-modifying therapy**, discussed in the following sub-Part, remains genuinely essential for any patient with confirmed inflammatory arthritis carrying a meaningful risk of progressive structural joint damage, rather than relying on symptomatic treatment alone regardless of how effectively it controls day-to-day symptoms.

Fill in the blank: Neither NSAIDs nor corticosteroids genuinely halt the underlying disease process or prevent progressive joint _____.

1.4.2 disease-modifying antirheumatic drugs

Genuinely altering the disease course, not just controlling symptoms

Disease-modifying antirheumatic drugs, commonly abbreviated as DMARDs, genuinely alter the underlying disease course rather than simply providing symptomatic relief, with **conventional synthetic DMARDs**, including methotrexate, the most widely used first-line agent across several inflammatory arthritis conditions, working through broad immunomodulatory mechanisms requiring several weeks to reach full clinical effect.

Biological DMARDs, targeting specific inflammatory pathways or cell types directly, including tumour necrosis factor inhibitors and several other targeted agents, offer a further treatment option for patients with disease inadequately controlled on conventional synthetic DMARDs alone, and, given their genuinely more targeted mechanism and considerable expense, are typically reserved for this specific circumstance rather than used as universal first-line therapy.

Fill in the blank: Biological DMARDs are typically reserved for disease inadequately controlled on conventional synthetic _____ alone.

1.4.3 the multidisciplinary team in rheumatology

A genuinely essential, coordinated approach beyond medication alone

Comprehensive rheumatological care extends genuinely well beyond pharmacological treatment alone, incorporating physiotherapy to maintain joint function and mobility, occupational therapy to support activities of daily living and provide joint protection advice, and podiatry where foot involvement genuinely affects mobility, a coordinated, multidisciplinary approach directly reflecting the wide-ranging functional impact inflammatory arthritis can produce.

Patient education and self-management support, alongside psychological support where the chronic, sometimes genuinely disabling nature of inflammatory arthritis meaningfully affects mental wellbeing, complete this comprehensive, multidisciplinary approach, and this Series closes on the same theme of coordinated, structured, individualised care that will recur throughout the remainder of this course as it progresses through the specific conditions this foundational Series has introduced.

Fill in the blank: Psychological support is genuinely important given the chronic, sometimes disabling nature of inflammatory arthritis affecting mental _____.

Table 1.2: Comparing conventional synthetic and biological DMARDs

Feature	Conventional synthetic DMARDs	Biological DMARDs
Example	Methotrexate	Tumour necrosis factor inhibitors
Mechanism	Broad immunomodulation	Targeted inflammatory pathway
Typical position in treatment	First-line	Reserved for inadequate response to first-line

Pilot questions 1.4

1. Describe the role of NSAIDs and corticosteroids in inflammatory arthritis. (Linked to SLO 1.7)
2. Explain why symptomatic treatment alone is genuinely insufficient for inflammatory arthritis. (Linked to SLO 1.7)
3. Describe conventional synthetic DMARDs and give an example. (Linked to SLO 1.8)
4. Describe biological DMARDs and when they are typically used. (Linked to SLO 1.8)
5. List the members of the multidisciplinary team involved in rheumatological care. (Linked to SLO 1.8)

Series Summary

This opening Series built the foundational framework for approaching joint disease across the rest of this course. Part 1.1 covered the clinical assessment and investigation of joint disease, while Part 1.2 turned to the classification of arthritis as seronegative versus seropositive. Part 1.3 covered the seronegative spondyloarthropathies, and Part 1.4 closed with the general principles of pharmacological management, DMARDs, and multidisciplinary care.

You should now be able to assess and classify joint disease, distinguish seronegative from seropositive arthritis, and describe the general principles of inflammatory arthritis management across all four Parts of this Series, meeting the outcomes set for this Series. Series 2 turns next to rheumatoid arthritis, Sjögren's syndrome, ankylosing spondylitis, and enteropathic arthropathy.

Glossary of Terms

- **Anti-CCP antibody:** an antibody offering superior specificity for rheumatoid arthritis over rheumatoid factor.
- **Dactylitis:** diffuse, sausage-like swelling of an entire digit.
- **DMARD:** disease-modifying antirheumatic drug, genuinely altering the underlying disease course.
- **Enthesitis:** inflammation at the site where tendons and ligaments attach to bone.
- **HLA-B27:** a genetic marker strongly associated with the seronegative spondyloarthropathies.
- **Oligoarthritis:** arthritis affecting two to four joints.
- **Onycholysis:** separation of the nail from the underlying nail bed.
- **Polyarthritis:** arthritis affecting five or more joints.
- **Psoriatic arthritis:** inflammatory arthritis occurring in patients with psoriasis.
- **Reactive arthritis:** arthritis triggered by a preceding genitourinary or gastrointestinal infection.
- **Rheumatoid factor:** an antibody against immunoglobulin G, associated with seropositive arthritis.
- **Seronegative spondyloarthropathy:** a family of related inflammatory arthritis conditions sharing characteristic features.

Concept Check Questions [Series 1]

Objective questions

1. Inflammatory joint pain is accompanied by prolonged early morning stiffness lasting more than _____ minutes. (Linked to SLO 1.1)
2. Seropositive arthritis is associated with a positive rheumatoid factor or anti-CCP _____. (Linked to SLO 1.3)
3. Dactylitis is diffuse swelling of an entire digit, sometimes described as a sausage _____. (Linked to SLO 1.5)
4. Reactive arthritis reflects an abnormal immune response to a triggering infection rather than direct joint _____. (Linked to SLO 1.6)
5. Biological DMARDs are typically reserved for disease inadequately controlled on conventional synthetic _____ alone. (Linked to SLO 1.8)

Short-answer questions

6. Define monoarthritis, oligoarthritis, and polyarthritis. (Linked to SLO 1.1)
7. Explain the advantage of anti-CCP antibody testing over rheumatoid factor alone. (Linked to SLO 1.4)
8. Describe the range of joint patterns seen in psoriatic arthritis. (Linked to SLO 1.6)
9. Distinguish reactive arthritis from septic arthritis. (Linked to SLO 1.6)
10. Describe biological DMARDs and when they are typically used. (Linked to SLO 1.8)

Long-answer questions

11. Discuss the clinical assessment, pattern recognition, and investigation of joint disease. (Linked to SLO 1.1, 1.2)
12. Describe the classification of arthritis as seronegative versus seropositive, including the roles of rheumatoid factor, anti-CCP, and HLA-B27. (Linked to SLO 1.3, 1.4)
13. Discuss the shared features of the seronegative spondyloarthropathies and describe psoriatic and reactive arthritis. (Linked to SLO 1.5, 1.6)
14. Describe the general principles of pharmacological management of inflammatory arthritis. (Linked to SLO 1.7)
15. Discuss the role of DMARDs and the multidisciplinary team in rheumatological care. (Linked to SLO 1.8)

Answers to Concept Check Questions [Series 1]

Objective questions

1. Thirty.
2. Antibody.
3. Digit.
4. Infection.
5. DMARDs.

Short-answer questions

6. Monoarthritis affects one joint, oligoarthritis affects two to four, and polyarthritis affects five or more.
7. Anti-CCP offers superior specificity for rheumatoid arthritis and carries additional prognostic significance.
8. Patterns range from asymmetrical oligoarthritis through symmetrical polyarthritis to predominantly axial disease.
9. Reactive arthritis is an immune response to a distant infection, while septic arthritis is direct joint infection.
10. Biological DMARDs target specific inflammatory pathways, reserved for inadequate response to conventional synthetic DMARDs.

Long-answer questions

11. **Basic response:** Assessment distinguishes inflammatory from mechanical pain; pattern recognition uses joint number, distribution, and symmetry; investigation combines inflammatory markers, autoantibodies, and imaging.

    Value-added response: A value-added response notes that imaging can detect active synovitis before structural damage is visible on plain radiography.

12. **Basic response:** Seropositive arthritis is associated with rheumatoid factor or anti-CCP positivity, classically rheumatoid arthritis; seronegative arthritis, particularly the spondyloarthropathies, is associated with HLA-B27 rather than these antibodies.

    Value-added response: A value-added response notes that HLA-B27 is supportive evidence rather than a standalone diagnostic test.

13. **Basic response:** Shared features include enthesitis, dactylitis, axial involvement, and HLA-B27 association; psoriatic arthritis shows varied joint patterns with nail changes, while reactive arthritis follows a preceding infection.

Value-added response: A value-added response notes that joint symptoms can occasionally precede visible skin psoriasis in psoriatic arthritis.

14. **Basic response:** NSAIDs and corticosteroids provide symptomatic relief but do not halt disease progression, making disease-modifying therapy genuinely essential for patients at risk of structural damage.

    Value-added response: A value-added response notes that corticosteroids carry a meaningful side effect burden with prolonged use requiring careful weighing.

15. **Basic response:** Conventional synthetic DMARDs like methotrexate are first-line, with biological DMARDs reserved for inadequate response; comprehensive care also involves physiotherapy, occupational therapy, and psychological support.

    Value-added response: A value-added response notes that patient education and self-management support complete this comprehensive approach.

Answers to Pilot Questions [Series 1]

Part 1.1

1. Inflammatory pain is worse with rest and improves with movement, while mechanical pain is worse with activity.
2. Monoarthritis affects one joint, oligoarthritis affects two to four, and polyarthritis affects five or more.
3. Symmetrical involvement suggests rheumatoid arthritis, while asymmetrical involvement suggests a spondyloarthropathy.
4. Inflammatory markers provide a non-specific but useful measure of overall inflammatory activity.
5. Imaging can detect active synovitis and early erosive change before structural damage is visible on plain film.

Part 1.2

1. Seropositive arthritis has positive rheumatoid factor or anti-CCP, while seronegative arthritis does not.
2. Rheumatoid factor is positive in most but not all rheumatoid arthritis patients and can be positive in other conditions.

3. Anti-CCP offers superior specificity and carries additional prognostic significance for more aggressive disease.
4. HLA-B27 is a genetic marker strongly associated with the seronegative spondyloarthropathies.
5. Most HLA-B27 positive individuals never develop a spondyloarthropathy, limiting its standalone diagnostic value.

Part 1.3

1. Shared features include enthesitis, dactylitis, axial involvement, and HLA-B27 association.
2. Enthesitis is inflammation at the site where tendons and ligaments attach to bone.
3. Patterns range from asymmetrical oligoarthritis through symmetrical polyarthritis to predominantly axial disease.
4. Changes include nail pitting and onycholysis, separation of the nail from the nail bed.
5. Reactive arthritis is an immune response to a distant infection, while septic arthritis is direct joint infection.

Part 1.4

1. NSAIDs and corticosteroids provide symptomatic relief of pain and inflammation.
2. Neither halts the underlying disease process or prevents progressive joint damage.
3. Conventional synthetic DMARDs provide broad immunomodulation; methotrexate is the most widely used example.
4. Biological DMARDs target specific pathways, used when conventional synthetic DMARDs provide inadequate control.
5. The team includes physiotherapy, occupational therapy, podiatry, and psychological support.

References and Attributions [Series 1]

- Kumar, P., & Clark, M. (2020). Kumar and Clark's Clinical Medicine (10th ed.). Elsevier.
- Hochberg, M. C., Gravallese, E. M., Smolen, J. S., van der Heijde, D., Weinblatt, M. E., & Weisman, M. H. (2019). Rheumatology (7th ed.). Elsevier.
- American College of Rheumatology (2021). Guideline for the Treatment of Rheumatoid Arthritis. Arthritis Care and Research.

- Assessment of SpondyloArthritis International Society (2011). Classification Criteria for Spondyloarthritis. Annals of the Rheumatic Diseases.

Figures, Plates, Tables, and Boxes

- Figure 1.1: A clinician examining a patient's hand joints for swelling and tenderness. AI-generated using the prompt: "Create a realistic clinical illustration titled Joint Examination of the Hand, showing a clinician gently palpating the small joints of a seated patient's hand, examination room setting. Clean clinical illustration style, no text."
- Table 1.1: Comparing seronegative and seropositive arthritis. AI-generated using the prompt: "Create a clean reference table titled Comparing Seronegative and Seropositive Arthritis, listing feature, seropositive arthritis, and seronegative arthritis. Simple clinical reference table style with outside border."
- Figure 1.2: Dactylitis, diffuse sausage-like swelling of a finger. AI-generated using the prompt: "Create a realistic clinical illustration titled Dactylitis, showing a close-up view of a patient's hand with one finger displaying diffuse, uniform swelling along its entire length compared with the adjacent normal fingers, clean neutral background. Clean clinical illustration style, no text."
- Table 1.2: Comparing conventional synthetic and biological DMARDs. AI-generated using the prompt: "Create a clean reference table titled Comparing Conventional Synthetic and Biological DMARDs, listing feature, conventional synthetic DMARDs, and biological DMARDs. Simple clinical reference table style with outside border."

Course code: MED 610

Course title: Rheumatology and Care of the Elderly

Course credit load: 2 Units

Series 2: Rheumatoid Arthritis, Sjögren's Syndrome, Ankylosing Spondylitis, and Enteropathic Arthropathy

- **Part 2.1: Rheumatoid Arthritis I: Pathophysiology and Presentation**
  - Sub Part 2.1.1: Pathophysiology of rheumatoid arthritis
  - Sub Part 2.1.2: Clinical presentation of rheumatoid arthritis
  - Sub Part 2.1.3: Extra-articular manifestations of rheumatoid arthritis
- **Part 2.2: Rheumatoid Arthritis II: Diagnosis and Management**
  - Sub Part 2.2.1: Diagnostic criteria and investigation of rheumatoid arthritis
  - Sub Part 2.2.2: Management of rheumatoid arthritis
  - Sub Part 2.2.3: Monitoring and complications of rheumatoid arthritis treatment
- **Part 2.3: Sjögren's Syndrome**
  - Sub Part 2.3.1: Pathophysiology of Sjögren's syndrome
  - Sub Part 2.3.2: Clinical presentation of Sjögren's syndrome
  - Sub Part 2.3.3: Diagnosis and management of Sjögren's syndrome
- **Part 2.4: Ankylosing Spondylitis and Enteropathic Arthropathy**
  - Sub Part 2.4.1: Ankylosing spondylitis: pathophysiology and presentation
  - Sub Part 2.4.2: Diagnosis and management of ankylosing spondylitis
  - Sub Part 2.4.3: Enteropathic arthropathy

Introduction

Having built the foundational classification framework in Series 1, this Series turns to four specific, individually named conditions that this course's content explicitly identifies for detailed

study, **rheumatoid arthritis**, the archetypal seropositive arthritis, **Sjögren's syndrome**, a genuinely distinct autoimmune condition frequently associated with it, and **ankylosing spondylitis** and **enteropathic arthropathy**, both members of the seronegative spondyloarthropathy family already introduced in Series 1.

The aim of this Series is to equip you with an understanding of the pathophysiology, presentation, extra-articular manifestations, diagnosis, and management of rheumatoid arthritis, the pathophysiology, presentation, diagnosis, and management of Sjögren's syndrome, and the pathophysiology, presentation, diagnosis, and management of ankylosing spondylitis and enteropathic arthropathy.

This Series opens with **rheumatoid arthritis I: pathophysiology and presentation**, moves through **rheumatoid arthritis II: diagnosis and management** and **Sjögren's syndrome**, and closes with **ankylosing spondylitis and enteropathic arthropathy**.

Series Learning Outcomes

At the end of this Series, you should be able to:

- **SLO 2.1:** describe the pathophysiology and clinical presentation of rheumatoid arthritis
- **SLO 2.2:** describe the extra-articular manifestations of rheumatoid arthritis
- **SLO 2.3:** describe the diagnosis and management of rheumatoid arthritis
- **SLO 2.4:** discuss the monitoring and complications of rheumatoid arthritis treatment
- **SLO 2.5:** describe the pathophysiology and clinical presentation of Sjögren's syndrome
- **SLO 2.6:** discuss the diagnosis and management of Sjögren's syndrome
- **SLO 2.7:** describe the pathophysiology, presentation, diagnosis, and management of ankylosing spondylitis
- **SLO 2.8:** describe enteropathic arthropathy

2.1 Rheumatoid Arthritis I: Pathophysiology and Presentation

2.1.1 pathophysiology of rheumatoid arthritis

Chronic synovial inflammation destroying joint architecture

Rheumatoid arthritis, a chronic, systemic autoimmune condition, results from immune-mediated inflammation of the synovium, the membrane lining joint capsules, producing **pannus**, abnormal, invasive inflammatory tissue that progressively destroys articular cartilage and

underlying bone if left untreated, a genuinely destructive process directly underlying the characteristic joint deformity this condition can eventually produce.

The precise trigger initiating this autoimmune process remains genuinely incompletely understood, though a combination of genetic susceptibility, particularly certain human leukocyte antigen variants, and environmental factors, including smoking, is thought to contribute, and rheumatoid arthritis affects women considerably more commonly than men, typically presenting between the ages of thirty and fifty, a demographic pattern worth recognising alongside the specific joint pattern discussed in the following sub-Part.

Fill in the blank: Pannus is abnormal, invasive inflammatory tissue that progressively destroys articular cartilage and underlying _____.

2.1.2 clinical presentation of rheumatoid arthritis

Symmetrical small joint involvement, genuinely characteristic

Rheumatoid arthritis classically presents with **symmetrical polyarthritis** affecting the small joints of the hands and feet, particularly the metacarpophalangeal and proximal interphalangeal joints, alongside prolonged early morning stiffness already discussed in Series 1, and, as disease progresses without adequate treatment, characteristic joint deformities including ulnar deviation of the fingers and swan neck deformity can develop, reflecting cumulative structural joint damage.

The onset is typically insidious, developing gradually over weeks to months, though a proportion of patients present more acutely, and general systemic symptoms including fatigue and malaise frequently accompany the joint symptoms, reflecting the genuinely systemic, rather than purely localised, nature of this autoimmune condition, a theme returned to in the following sub-Part covering its extra-articular manifestations.

Fill in the blank: Rheumatoid arthritis classically presents with symmetrical polyarthritis affecting the metacarpophalangeal and proximal interphalangeal _____.

2.1.3 extra-articular manifestations of rheumatoid arthritis

A genuinely systemic disease extending well beyond the joints

Rheumatoid nodules, firm, subcutaneous nodules typically occurring over pressure points such as the elbows, are a genuinely characteristic extra-articular finding, alongside pulmonary involvement, including pleural effusion and pulmonary fibrosis, and ocular involvement, including scleritis, and these manifestations together underline why rheumatoid arthritis

genuinely demands a comprehensive systemic assessment rather than an examination confined to the joints alone.

Cardiovascular risk is genuinely, meaningfully elevated in patients with rheumatoid arthritis, reflecting the systemic inflammatory burden this condition produces, independent of traditional cardiovascular risk factors, and this elevated risk directly underlines why comprehensive rheumatoid arthritis management genuinely extends to active cardiovascular risk factor assessment and modification alongside joint-directed treatment, a theme developed further in the following Part of this Series.

Fill in the blank: Cardiovascular risk is genuinely, meaningfully elevated in rheumatoid arthritis, reflecting the systemic inflammatory _____ it produces.

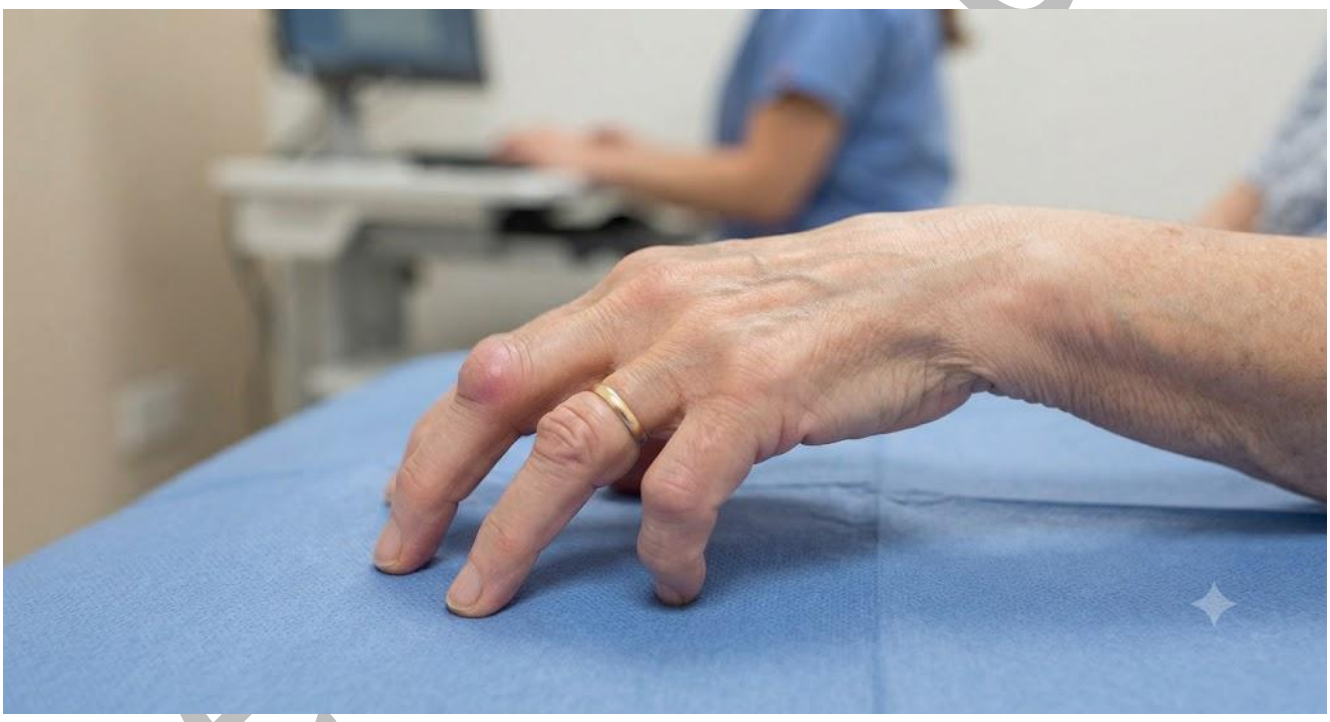

Figure 2.1: Ulnar deviation of the fingers, a characteristic deformity of established rheumatoid arthritis.

Pilot questions 2.1

- Describe the pathophysiology of rheumatoid arthritis. (Linked to SLO 2.1)
- Describe the classic joint pattern of rheumatoid arthritis. (Linked to SLO 2.1)
- Describe ulnar deviation and swan neck deformity. (Linked to SLO 2.1)
- Describe rheumatoid nodules. (Linked to SLO 2.2)
- Explain why cardiovascular risk assessment is genuinely important in rheumatoid arthritis. (Linked to SLO 2.2)

2.2 Rheumatoid Arthritis II: Diagnosis and Management

2.2.1 diagnostic criteria and investigation of rheumatoid arthritis

Combining clinical, serological, and imaging evidence

Diagnosis of rheumatoid arthritis combines the characteristic clinical pattern already discussed with rheumatoid factor and anti-CCP antibody testing, already introduced in Series 1, alongside inflammatory markers and joint imaging, and formal classification criteria, combining these elements into a structured scoring system, support consistent, reproducible diagnosis, particularly valuable for early disease before the classic established joint deformities have had the opportunity to develop.

Early diagnosis genuinely matters given the window of opportunity for effective treatment to prevent irreversible joint damage before it occurs, and this genuine urgency underlines why any patient presenting with a suggestive symmetrical small joint arthritis pattern should be referred promptly for specialist rheumatological assessment rather than a delayed, watchful waiting approach that risks allowing genuinely preventable structural damage to accumulate.

Fill in the blank: Early diagnosis of rheumatoid arthritis genuinely matters given the window of opportunity to prevent irreversible joint _____.

2.2.2 management of rheumatoid arthritis

Early, aggressive treatment aiming for genuine disease control

Early initiation of disease-modifying antirheumatic drug therapy, already introduced in Series 1, typically starting with methotrexate as the first-line conventional synthetic agent, forms the cornerstone of rheumatoid arthritis management, with the treatment goal of achieving genuine disease remission or, where remission is not achievable, the lowest possible level of ongoing disease activity, following a structured **treat-to-target** strategy involving regular disease activity assessment and treatment adjustment.

Combination DMARD therapy, or escalation to biological DMARD therapy already introduced in Series 1, is used where initial monotherapy fails to achieve adequate disease control, and this structured, escalating treatment approach, alongside the multidisciplinary supportive care already discussed in Series 1, together form a genuinely comprehensive management strategy for this chronic, potentially significantly disabling condition.

Fill in the blank: A treat-to-target strategy involves regular disease activity assessment and treatment _____.

2.2.3 monitoring and complications of rheumatoid arthritis treatment

Genuine treatment risks requiring active surveillance

Methotrexate, while genuinely effective, requires regular blood monitoring given its potential for hepatotoxicity and bone marrow suppression, and patients require clear counselling about these specific risks alongside the genuinely important teratogenic risk requiring reliable contraception during treatment, illustrating why regular, structured monitoring forms a genuinely essential, ongoing component of safe DMARD therapy rather than a one-time consideration at treatment initiation alone.

Biological DMARDs carry a genuinely increased risk of serious infection given their targeted immunosuppressive mechanism, requiring screening for latent tuberculosis and other specific infections before treatment initiation, and this careful, structured pre-treatment screening and ongoing monitoring, closing this Part of the Series, reflects the same careful risk-benefit weighing already emphasised for immunosuppressive treatment throughout this course.

Fill in the blank: Biological DMARDs require screening for latent _____ and other specific infections before treatment initiation.

Table 2.1: Monitoring requirements for key rheumatoid arthritis medications

Medication	Key monitoring requirement	Genuine specific risk
Methotrexate	Regular blood count and liver function tests	Hepatotoxicity, bone marrow suppression
Corticosteroids	Blood glucose and bone density monitoring	Osteoporosis, hyperglycaemia
Biological DMARDs	Pre-treatment infection screening	Serious infection risk

Pilot questions 2.2

1. Describe the diagnostic approach to rheumatoid arthritis. (Linked to SLO 2.3)
2. Explain why early diagnosis genuinely matters in rheumatoid arthritis. (Linked to SLO 2.3)

3. Describe the treat-to-target management strategy. (Linked to SLO 2.3)
4. Describe the monitoring requirements for methotrexate. (Linked to SLO 2.4)
5. Explain why biological DMARDs require pre-treatment infection screening. (Linked to SLO 2.4)

2.3 Sjögren's Syndrome

2.3.1 pathophysiology of sjögren's syndrome

Autoimmune destruction of exocrine glands

Sjögren's syndrome, an autoimmune condition resulting from lymphocytic infiltration and destruction of exocrine glands, most notably the salivary and lacrimal glands, occurs either as **primary Sjögren's syndrome**, arising independently, or **secondary Sjögren's syndrome**, occurring in association with another autoimmune condition, most commonly rheumatoid arthritis already discussed earlier in this Series, a genuinely important distinction with relevance to associated features and overall clinical management.

Like rheumatoid arthritis, Sjögren's syndrome affects women considerably more commonly than men, and the underlying autoimmune process, while genuinely centred on exocrine glands, can extend to affect other organ systems, reflecting the same genuinely systemic autoimmune character already emphasised for rheumatoid arthritis, rather than a purely localised process confined to the glands themselves.

Fill in the blank: Secondary Sjögren's syndrome occurs in association with another autoimmune condition, most commonly rheumatoid _____.

2.3.2 clinical presentation of sjögren's syndrome

Dryness as the genuinely defining symptom

Sicca symptoms, dry eyes, termed keratoconjunctivitis sicca, and dry mouth, termed xerostomia, are the genuinely defining, characteristic symptoms of Sjögren's syndrome, reflecting the destruction of the lacrimal and salivary glands already discussed, and patients frequently describe a gritty, foreign body sensation in the eyes and difficulty with dry foods or prolonged speech given the reduced salivary lubrication.

Beyond sicca symptoms, Sjögren's syndrome can produce fatigue, joint pain, and, in a genuinely important minority of patients, more significant systemic involvement including interstitial lung

disease and, notably, a meaningfully increased long-term risk of lymphoma, a genuinely serious potential complication that underlines why ongoing surveillance and active symptom reporting remain important throughout the long-term course of this chronic condition.

Fill in the blank: Sjögren's syndrome carries a meaningfully increased long-term risk of _____.

2.3.3 diagnosis and management of sjögren's syndrome

Confirming glandular dysfunction and providing symptomatic relief

Diagnosis combines the characteristic sicca symptoms with objective testing, including the **Schirmer test**, measuring tear production using a small paper strip placed within the lower eyelid, and specific autoantibody testing, anti-Ro and anti-La antibodies, positive in a genuinely meaningful proportion of affected patients, and, where the diagnosis remains genuinely uncertain, salivary gland biopsy can provide additional supportive histological confirmation.

Management is largely symptomatic, using artificial tears and saliva substitutes to address the sicca symptoms directly, alongside treatment of any associated systemic features following the same general immunosuppressive principles already discussed for rheumatoid arthritis where genuinely significant systemic involvement is present, and regular dental and ophthalmological review, given the genuine risk of dental caries and corneal damage from chronic dryness, forms an essential ongoing part of comprehensive care.

Fill in the blank: The Schirmer test measures tear production using a small paper strip placed within the lower _____.

Figure 2.2: A clinician performing a Schirmer test to measure tear production.

Pilot questions 2.3

1. Describe the pathophysiology of Sjögren's syndrome. (Linked to SLO 2.5)
2. Distinguish primary from secondary Sjögren's syndrome. (Linked to SLO 2.5)
3. Describe sicca symptoms. (Linked to SLO 2.5)
4. Describe the Schirmer test. (Linked to SLO 2.6)
5. Describe the general management approach to Sjögren's syndrome. (Linked to SLO 2.6)

2.4 Ankylosing Spondylitis and Enteropathic Arthropathy

2.4.1 ankylosing spondylitis: pathophysiology and presentation

Progressive axial inflammation and, eventually, spinal fusion

Ankylosing spondylitis, the archetypal seronegative spondyloarthropathy already introduced in Series 1, predominantly affects the sacroiliac joints and spine, producing chronic inflammatory back pain, characteristically worse with rest and improving with exercise, and progressive,

sometimes genuinely severe, restriction of spinal mobility as chronic inflammation leads to new bone formation and, eventually, complete fusion of the vertebral column if the condition is left inadequately treated.

Ankylosing spondylitis characteristically presents in young adult men, though it genuinely also occurs in women, sometimes with a somewhat different or delayed presentation, and shares the extra-articular features already discussed in Series 1 for the spondyloarthropathy family as a whole, including anterior uveitis, and progressive loss of normal spinal curvature, producing the characteristic stooped posture recognisable even to non-specialists in advanced, inadequately treated disease.

Fill in the blank: Ankylosing spondylitis produces chronic inflammatory back pain, characteristically worse with rest and improving with _____.

2.4.2 diagnosis and management of ankylosing spondylitis

Imaging the sacroiliac joints and treating early

Diagnosis combines the characteristic clinical pattern with imaging of the sacroiliac joints, magnetic resonance imaging identifying active inflammatory change before it becomes visible on plain radiography, mirroring the same principle already discussed for early inflammatory arthritis detection in Series 1, alongside HLA-B27 testing, already introduced in Series 1 as supportive rather than standalone diagnostic evidence.

Management combines regular, structured physical exercise and physiotherapy, genuinely essential to maintaining spinal mobility and preventing the progressive stiffness this condition can otherwise produce, with nonsteroidal anti-inflammatory drugs as first-line pharmacological treatment, and biological DMARD therapy, particularly tumour necrosis factor inhibitors already introduced in Series 1, reserved for patients with disease inadequately controlled on these initial measures alone.

Fill in the blank: Physical exercise and physiotherapy are genuinely essential to maintaining spinal mobility and preventing progressive _____.

2.4.3 enteropathic arthropathy

Joint inflammation accompanying inflammatory bowel disease

Enteropathic arthropathy, arthritis occurring in association with inflammatory bowel disease, already discussed in an earlier course of this programme, presents in two genuinely distinct patterns: a peripheral arthritis, typically affecting large joints and tending to follow the activity of

the underlying bowel disease, and an axial arthritis, resembling ankylosing spondylitis already discussed earlier in this Part, whose activity is genuinely independent of the bowel disease's own activity.

This genuinely important distinction between peripheral and axial enteropathic arthropathy carries direct management relevance, since effective treatment of the underlying inflammatory bowel disease frequently, though genuinely not always, also improves the associated peripheral arthritis, while axial involvement typically requires the same specific spondyloarthropathy-directed treatment already discussed for ankylosing spondylitis, closing this Series on a genuinely unifying theme connecting the spondyloarthropathy family covered across this Series and the broader gastroenterological knowledge established elsewhere in this programme.

Fill in the blank: Peripheral enteropathic arthropathy tends to follow the activity of the underlying bowel _____.

Table 2.2: Comparing peripheral and axial enteropathic arthropathy

Feature	Peripheral enteropathic arthropathy	Axial enteropathic arthropathy
Typical joints	Large joints	Sacroiliac joints and spine
Relationship to bowel activity	Often follows bowel disease activity	Genuinely independent of bowel activity
Management focus	Treating the underlying bowel disease	Spondyloarthropathy-directed treatment

Pilot questions 2.4

1. Describe the pathophysiology and presentation of ankylosing spondylitis. (Linked to SLO 2.7)
2. Describe the diagnostic approach to ankylosing spondylitis. (Linked to SLO 2.7)
3. Describe the management of ankylosing spondylitis. (Linked to SLO 2.7)
4. Distinguish peripheral from axial enteropathic arthropathy. (Linked to SLO 2.8)
5. Explain why the peripheral-axial distinction in enteropathic arthropathy carries management relevance. (Linked to SLO 2.8)

Series Summary

This Series covered four specifically named rheumatological conditions in genuine depth. Part 2.1 covered the pathophysiology, presentation, and extra-articular manifestations of rheumatoid arthritis, while Part 2.2 turned to its diagnosis, management, and treatment monitoring. Part 2.3 covered Sjögren's syndrome, and Part 2.4 closed with ankylosing spondylitis and enteropathic arthropathy.

You should now be able to describe and manage rheumatoid arthritis, Sjögren's syndrome, ankylosing spondylitis, and enteropathic arthropathy across all four Parts of this Series, meeting the outcomes set for this Series. Series 3 turns next to osteoarthritis and the connective tissue disorders.

Glossary of Terms

1. **Ankylosing spondylitis:** the archetypal seronegative spondyloarthropathy affecting the sacroiliac joints and spine.
2. **Enteropathic arthropathy:** arthritis occurring in association with inflammatory bowel disease.
3. **Keratoconjunctivitis sicca:** dry eyes, a defining symptom of Sjögren's syndrome.
4. **Pannus:** abnormal, invasive inflammatory tissue destroying cartilage and bone in rheumatoid arthritis.
5. **Primary Sjögren's syndrome:** Sjögren's syndrome arising independently, without another associated autoimmune condition.
6. **Rheumatoid nodule:** a firm, subcutaneous nodule occurring over pressure points in rheumatoid arthritis.
7. **Schirmer test:** a test measuring tear production using a paper strip within the lower eyelid.
8. **Secondary Sjögren's syndrome:** Sjögren's syndrome occurring in association with another autoimmune condition.
9. **Sicca symptoms:** dry eyes and dry mouth, the defining symptoms of Sjögren's syndrome.
10. **Sjögren's syndrome:** an autoimmune condition causing lymphocytic destruction of exocrine glands.
11. **Treat-to-target strategy:** a structured approach involving regular disease activity assessment and treatment adjustment.
12. **Xerostomia:** dry mouth, a defining symptom of Sjögren's syndrome.

Concept Check Questions [Series 2]

Objective questions

- Pannus is abnormal, invasive inflammatory tissue that progressively destroys articular cartilage and underlying _____. (Linked to SLO 2.1)
- A treat-to-target strategy involves regular disease activity assessment and treatment _____. (Linked to SLO 2.3)
- Sjögren's syndrome carries a meaningfully increased long-term risk of _____. (Linked to SLO 2.5)
- Ankylosing spondylitis produces chronic inflammatory back pain, characteristically worse with rest and improving with _____. (Linked to SLO 2.7)
- Peripheral enteropathic arthropathy tends to follow the activity of the underlying bowel _____. (Linked to SLO 2.8)

Short-answer questions

1. Describe the classic joint pattern of rheumatoid arthritis. (Linked to SLO 2.1)
2. Describe rheumatoid nodules. (Linked to SLO 2.2)
3. Distinguish primary from secondary Sjögren's syndrome. (Linked to SLO 2.5)
4. Describe the Schirmer test. (Linked to SLO 2.6)
5. Distinguish peripheral from axial enteropathic arthropathy. (Linked to SLO 2.8)

Long-answer questions

6. Discuss the pathophysiology, presentation, and extra-articular manifestations of rheumatoid arthritis. (Linked to SLO 2.1, 2.2)
7. Describe the diagnosis, management, and monitoring of rheumatoid arthritis treatment. (Linked to SLO 2.3, 2.4)
8. Discuss the pathophysiology, presentation, diagnosis, and management of Sjögren's syndrome. (Linked to SLO 2.5, 2.6)
9. Describe the pathophysiology, presentation, diagnosis, and management of ankylosing spondylitis. (Linked to SLO 2.7)
10. Discuss enteropathic arthropathy. (Linked to SLO 2.8)

Answers to Concept Check Questions [Series 2]

Objective questions

11. Bone.
12. Adjustment.
13. Lymphoma.
14. Exercise.
15. Disease.

Short-answer questions

16. Rheumatoid arthritis classically presents with symmetrical polyarthritis affecting the small joints of the hands and feet.
17. Rheumatoid nodules are firm, subcutaneous nodules typically occurring over pressure points such as the elbows.
18. Primary Sjögren's syndrome arises independently, while secondary occurs alongside another autoimmune condition.
19. The Schirmer test measures tear production using a paper strip placed within the lower eyelid.
20. Peripheral arthropathy follows bowel disease activity and affects large joints, while axial arthropathy is independent and resembles ankylosing spondylitis.

Long-answer questions

21. **Basic response:** Rheumatoid arthritis results from synovial inflammation and pannus formation, presenting with symmetrical small joint polyarthritis; extra-articular manifestations include rheumatoid nodules, pulmonary and ocular involvement, and elevated cardiovascular risk.

    Value-added response: A value-added response notes that characteristic deformities like ulnar deviation develop with cumulative, inadequately treated joint damage.

22. **Basic response:** Diagnosis combines clinical pattern with serology and imaging; management uses early DMARD therapy following a treat-to-target strategy; monitoring addresses specific risks such as hepatotoxicity and infection.

    Value-added response: A value-added response notes that early diagnosis genuinely matters given the window of opportunity to prevent irreversible joint damage.

23. **Basic response:** Sjögren's syndrome results from lymphocytic destruction of exocrine glands, presenting with sicca symptoms; diagnosis uses the Schirmer test and specific antibodies; management is largely symptomatic.

    Value-added response: A value-added response notes the genuinely increased long-term lymphoma risk requiring ongoing surveillance.

24. **Basic response:** Ankylosing spondylitis affects the sacroiliac joints and spine, presenting with inflammatory back pain and progressive stiffness; diagnosis uses sacroiliac imaging and HLA-B27; management combines exercise, NSAIDs, and biological DMARDs.

    Value-added response: A value-added response notes that MRI can identify active inflammation before it is visible on plain radiography.

25. **Basic response:** Enteropathic arthropathy presents as peripheral arthritis following bowel disease activity, or axial arthritis independent of bowel activity, requiring different management approaches accordingly.

    Value-added response: A value-added response notes that treating the underlying bowel disease frequently improves peripheral but not axial involvement.

Answers to Pilot Questions [Series 2]

Part 2.1

1. Rheumatoid arthritis results from synovial inflammation and pannus formation destroying joint architecture.
2. The classic pattern is symmetrical polyarthritis affecting the small joints of the hands and feet.
3. Ulnar deviation is finger displacement towards the little finger side; swan neck is a specific finger deformity, both from cumulative damage.
4. Rheumatoid nodules are firm, subcutaneous nodules over pressure points such as the elbows.
5. Cardiovascular risk is elevated independent of traditional risk factors, reflecting systemic inflammatory burden.

Part 2.2

6. Diagnosis combines clinical pattern with serology, inflammatory markers, imaging, and formal classification criteria.
7. Early diagnosis allows treatment before irreversible joint damage develops.
8. Treat-to-target involves regular disease activity assessment and adjusting treatment to achieve remission or low activity.
9. Methotrexate requires regular blood count and liver function monitoring given hepatotoxicity and marrow suppression risk.
10. Biological DMARDs carry increased infection risk, requiring screening for latent tuberculosis before treatment.

Part 2.3

11. Sjögren's syndrome results from lymphocytic infiltration and destruction of exocrine glands.
12. Primary Sjögren's syndrome arises independently, while secondary occurs with another autoimmune condition.
13. Sicca symptoms are dry eyes and dry mouth, the defining symptoms of the condition.
14. The Schirmer test measures tear production using a paper strip in the lower eyelid.
15. Management is largely symptomatic, using artificial tears and saliva substitutes with regular dental and eye review.

Part 2.4

1. Ankylosing spondylitis affects the sacroiliac joints and spine, causing inflammatory back pain and progressive stiffness.
2. Diagnosis combines the clinical pattern with sacroiliac imaging and HLA-B27 testing.
3. Management combines exercise and physiotherapy, NSAIDs, and biological DMARDs for inadequate control.
4. Peripheral arthropathy affects large joints and follows bowel activity; axial arthropathy resembles ankylosing spondylitis independently.
5. Peripheral disease often improves with bowel disease treatment, while axial disease requires specific spondyloarthropathy treatment.

References and Attributions [Series 2]

1. Kumar, P., & Clark, M. (2020). Kumar and Clark's Clinical Medicine (10th ed.). Elsevier.
2. Hochberg, M. C., Gravallese, E. M., Smolen, J. S., van der Heijde, D., Weinblatt, M. E., & Weisman, M. H. (2019). Rheumatology (7th ed.). Elsevier.
3. American College of Rheumatology (2021). Guideline for the Treatment of Rheumatoid Arthritis. Arthritis Care and Research.
4. Shiboski, C. H., Shiboski, S. C., Seror, R., et al. (2017). 2016 ACR-EULAR Classification Criteria for Primary Sjögren's Syndrome. Arthritis and Rheumatology.

Figures, Plates, Tables, and Boxes

1. Figure 2.1: Ulnar deviation of the fingers, a characteristic deformity of established rheumatoid arthritis. AI-generated using the prompt: "Create a realistic clinical illustration titled Rheumatoid Hand Deformity, showing a patient's hand with visible ulnar deviation of the fingers at the metacarpophalangeal joints, clinical examination setting, respectful and clinical in tone. Clean clinical illustration style, no text."
2. Table 2.1: Monitoring requirements for key rheumatoid arthritis medications. AI-generated using the prompt: "Create a clean reference table titled Monitoring Requirements for Key Rheumatoid Arthritis Medications, listing medication, key monitoring requirement, and genuine specific risk. Simple clinical reference table style with outside border."
3. Figure 2.2: A clinician performing a Schirmer test to measure tear production. AI-generated using the prompt: "Create a realistic clinical illustration titled Schirmer Test for Tear Production, showing a clinician gently placing a small paper strip inside a seated patient's lower eyelid, clinical examination room setting. Clean clinical illustration style, no text."
4. Table 2.2: Comparing peripheral and axial enteropathic arthropathy. AI-generated using the prompt: "Create a clean reference table titled Comparing Peripheral and Axial Enteropathic Arthropathy, listing feature, peripheral enteropathic arthropathy, and axial enteropathic arthropathy. Simple clinical reference table style with outside border."

Course code: MED 610

Course title: Rheumatology and Care of the Elderly

Course credit load: 2 Units

Series 3: Osteoarthritis and the Connective Tissue Disorders

- **Part 3.1: Osteoarthritis**
    - Sub Part 3.1.1: Pathophysiology and risk factors of osteoarthritis
    - Sub Part 3.1.2: Clinical presentation of osteoarthritis
    - Sub Part 3.1.3: Investigation and management of osteoarthritis
- **Part 3.2: Systemic Lupus Erythematosus**
    - Sub Part 3.2.1: Pathophysiology of systemic lupus erythematosus
    - Sub Part 3.2.2: Clinical presentation of systemic lupus erythematosus
    - Sub Part 3.2.3: Diagnosis and management of systemic lupus erythematosus
- **Part 3.3: Systemic Sclerosis and Mixed Connective Tissue Disease**
    - Sub Part 3.3.1: Systemic sclerosis: pathophysiology and classification
    - Sub Part 3.3.2: Clinical presentation and management of systemic sclerosis
    - Sub Part 3.3.3: Mixed connective tissue disease
- **Part 3.4: Dermatomyositis and Polymyositis**
    - Sub Part 3.4.1: Pathophysiology of dermatomyositis and polymyositis
    - Sub Part 3.4.2: Clinical presentation of dermatomyositis and polymyositis
    - Sub Part 3.4.3: Diagnosis and management of dermatomyositis and polymyositis

Introduction

This Series turns from the inflammatory arthritides covered in Series 2 to **osteoarthritis**, a genuinely distinct, degenerative rather than primarily inflammatory joint condition, before moving to the **connective tissue disorders**, a family of autoimmune conditions capable of affecting genuinely almost any organ system in the body, systemic lupus erythematosus, systemic sclerosis, mixed connective tissue disease, and dermatomyositis and polymyositis.

The aim of this Series is to equip you with an understanding of the pathophysiology, presentation, investigation, and management of osteoarthritis, the pathophysiology, presentation, diagnosis, and management of systemic lupus erythematosus, the pathophysiology, classification, and presentation of systemic sclerosis and mixed connective tissue disease, and the pathophysiology, presentation, diagnosis, and management of dermatomyositis and polymyositis.

This Series opens with **osteoarthritis**, moves through **systemic lupus erythematosus** and **systemic sclerosis and mixed connective tissue disease**, and closes with **dermatomyositis and polymyositis**.

Series Learning Outcomes

At the end of this Series, you should be able to:

- **SLO 3.1:** describe the pathophysiology, risk factors, and clinical presentation of osteoarthritis
- **SLO 3.2:** discuss the investigation and management of osteoarthritis
- **SLO 3.3:** describe the pathophysiology and clinical presentation of systemic lupus erythematosus
- **SLO 3.4:** discuss the diagnosis and management of systemic lupus erythematosus
- **SLO 3.5:** describe the pathophysiology, classification, and clinical presentation of systemic sclerosis
- **SLO 3.6:** describe mixed connective tissue disease
- **SLO 3.7:** describe the pathophysiology and clinical presentation of dermatomyositis and polymyositis
- **SLO 3.8:** discuss the diagnosis and management of dermatomyositis and polymyositis

3.1 Osteoarthritis

3.1.1 pathophysiology and risk factors of osteoarthritis

Wear, tear, and a genuine biological repair response gone awry

Osteoarthritis, the most common form of arthritis overall, results from progressive degeneration of articular cartilage accompanied by an active, though genuinely imperfect, biological repair response producing new bone formation at joint margins, termed osteophytes, and subchondral bone changes, a pathophysiological process genuinely more complex and biologically active than the simple mechanical wear-and-tear description sometimes still applied to this condition.

Risk factors include advancing age, obesity, previous joint injury, and genetic predisposition, with mechanical loading playing a genuinely important contributory role, particularly for weight-bearing joints such as the hip and knee, and, notably, osteoarthritis, unlike the inflammatory arthritides covered in earlier Series of this course, is not primarily an autoimmune process, a genuinely important pathophysiological distinction directly shaping its management approach discussed later in this Part.

Fill in the blank: Osteoarthritis produces new bone formation at joint margins, termed _____.

3.1.2 clinical presentation of osteoarthritis

Mechanical pain, genuinely distinct from the inflammatory pattern

Osteoarthritis presents with **mechanical joint pain**, already contrasted with inflammatory pain in Series 1 of this course, worse with activity and relieved by rest, with only brief morning stiffness typically lasting less than thirty minutes, most commonly affecting the knees, hips, and small joints of the hands, and this genuinely distinctive symptomatic pattern, alongside the specific joint distribution, allows a confident clinical diagnosis in the great majority of cases.

Characteristic examination findings in hand osteoarthritis include **Heberden's nodes**, bony swelling at the distal interphalangeal joints, and **Bouchard's nodes**, bony swelling at the proximal interphalangeal joints, alongside crepitus, a palpable or audible grating sensation on joint movement reflecting the roughened, degenerated cartilage surfaces, and reduced range of movement in more advanced disease.

Fill in the blank: Heberden's nodes are bony swellings at the distal interphalangeal joints, while Bouchard's nodes occur at the proximal interphalangeal _____.

3.1.3 investigation and management of osteoarthritis

A largely clinical diagnosis, with genuinely conservative-first management

Osteoarthritis diagnosis relies primarily on the characteristic clinical pattern already discussed, with plain radiography, showing joint space narrowing, osteophyte formation, and subchondral sclerosis, used to support the diagnosis and assess severity where genuinely needed, rather than as a routine requirement for every patient with a genuinely typical, uncomplicated clinical presentation, since imaging findings frequently correlate only loosely with actual symptom severity.

Management prioritises **non-pharmacological measures**, including weight loss where relevant, structured exercise, and physiotherapy, given their genuine, meaningful benefit and favourable safety profile, alongside simple analgesia for symptomatic control, and **joint replacement surgery**, offering genuinely excellent outcomes for appropriately selected patients with significant, disabling osteoarthritis, particularly of the hip or knee, is reserved for disease genuinely refractory to conservative management.

Fill in the blank: Joint replacement surgery is reserved for osteoarthritis genuinely refractory to _____ management.

Figure 3.1: Heberden's nodes, bony swelling at the distal interphalangeal joints in hand osteoarthritis.

Pilot questions 3.1

- Describe the pathophysiology of osteoarthritis. (Linked to SLO 3.1)
- List risk factors for osteoarthritis. (Linked to SLO 3.1)
- Describe the typical joint pain pattern in osteoarthritis. (Linked to SLO 3.1)
- Distinguish Heberden's nodes from Bouchard's nodes. (Linked to SLO 3.1)
- Describe the general management approach to osteoarthritis. (Linked to SLO 3.2)

3.2 Systemic Lupus Erythematosus

3.2.1 pathophysiology of systemic lupus erythematosus

A genuinely multi-system autoimmune disease

Systemic lupus erythematosus, a chronic autoimmune condition resulting from loss of normal immune tolerance leading to autoantibody production and immune complex deposition across multiple organ systems, predominantly affects women of childbearing age, and its underlying trigger, like many autoimmune conditions already discussed across this course, reflects a genuinely complex interplay of genetic susceptibility and environmental factors, including ultraviolet light exposure.

The genuinely wide-ranging organ involvement systemic lupus erythematosus can produce, affecting skin, joints, kidneys, the nervous system, and blood cells, among other organ systems, directly reflects the widespread nature of the underlying immune complex deposition process, and this genuinely variable, unpredictable pattern of organ involvement between individual patients is a hallmark feature this Series's coverage aims to convey confidently.

Fill in the blank: Systemic lupus erythematosus results from loss of normal immune tolerance leading to autoantibody production and immune complex _____.

3.2.2 clinical presentation of systemic lupus erythematosus

A genuinely wide-ranging, sometimes deceptively subtle pattern

Cutaneous manifestations, including the characteristic **malar rash**, a butterfly-shaped rash across the cheeks and nose bridge, sparing the nasolabial folds, and photosensitivity, worsened

rash following sun exposure, are genuinely common presenting features, alongside joint pain, typically a non-erosive arthritis genuinely distinct from the erosive joint damage characteristic of rheumatoid arthritis already discussed in Series 2.

Renal involvement, lupus nephritis, presenting with proteinuria and, in more advanced cases, declining kidney function, and **neuropsychiatric involvement**, ranging from headache and mood disturbance to genuinely severe seizure or psychosis, represent two of the genuinely most serious potential organ manifestations, and actively screening for both, rather than focusing exclusively on the more visually obvious cutaneous and joint symptoms, forms a genuinely essential part of comprehensive assessment.

Fill in the blank: A malar rash is a butterfly-shaped rash across the cheeks and nose bridge, sparing the nasolabial _____.

3.2.3 diagnosis and management of systemic lupus erythematosus

Combining clinical features with specific serological testing

Diagnosis combines the characteristic clinical features already discussed with specific autoantibody testing, **antinuclear antibody**, positive in the great majority of affected patients though genuinely non-specific alone, and **anti-double-stranded DNA antibody**, considerably more specific for systemic lupus erythematosus and, genuinely usefully, correlating with disease activity in many patients, allowing it to serve a genuine monitoring role alongside its diagnostic value.

Management is genuinely individualised according to the specific pattern and severity of organ involvement, ranging from hydroxychloroquine as a foundational treatment for milder disease, to immunosuppressive therapy, including corticosteroids and specific immunosuppressive agents, for more significant organ-threatening disease such as lupus nephritis, and, given the genuinely wide-ranging, unpredictable disease course, ongoing, structured monitoring for both disease activity and treatment-related complications forms an essential, lifelong component of comprehensive care.

Fill in the blank: Anti-double-stranded DNA antibody is considerably more specific for systemic lupus erythematosus and correlates with disease _____.

Table 3.1: Key clinical and serological features of systemic lupus erythematosus

Feature	Finding	Clinical relevance
Malar rash	Butterfly-shaped facial rash	Common presenting cutaneous feature

Antinuclear antibody	Positive in most patients	Sensitive but non-specific
Anti-double-stranded DNA	Positive in a meaningful proportion	More specific, tracks disease activity

Pilot questions 3.2

1. Describe the pathophysiology of systemic lupus erythematosus. (Linked to SLO 3.3)
2. Describe the malar rash. (Linked to SLO 3.3)
3. Distinguish lupus arthritis from rheumatoid arthritis in terms of joint damage. (Linked to SLO 3.3)
4. List serious organ manifestations of systemic lupus erythematosus. (Linked to SLO 3.3)
5. Distinguish antinuclear antibody from anti-double-stranded DNA antibody in diagnostic value. (Linked to SLO 3.4)

3.3 Systemic Sclerosis and Mixed Connective Tissue Disease

3.3.1 systemic sclerosis: pathophysiology and classification

Excessive fibrosis affecting skin and internal organs alike

Systemic sclerosis, also termed scleroderma, results from excessive collagen deposition and fibrosis affecting the skin and, genuinely importantly, internal organs, driven by a combination of autoimmune activation, vascular injury, and fibroblast dysfunction, and is classified as **limited cutaneous systemic sclerosis**, skin involvement confined to the hands, forearms, and face, or **diffuse cutaneous systemic sclerosis**, more widespread skin involvement extending to the trunk and proximal limbs.

This classification carries genuine prognostic significance, since diffuse cutaneous disease is generally associated with earlier and more significant internal organ involvement, particularly pulmonary and renal disease, compared with limited cutaneous disease, though limited cutaneous disease itself carries its own specific, genuinely significant risk of pulmonary arterial hypertension developing later in the disease course.

Fill in the blank: Diffuse cutaneous systemic sclerosis is generally associated with earlier and more significant internal _____ involvement.

3.3.2 clinical presentation and management of systemic sclerosis

Skin tightening, Raynaud's phenomenon, and organ-specific complications

Raynaud's phenomenon, episodic vasospasm of the digital arteries producing characteristic colour change, white, then blue, then red, in response to cold or stress, is frequently the earliest presenting feature of systemic sclerosis, alongside progressive skin thickening, **sclerodactyly**, producing tapering, tight fingers with reduced mobility, and, in more advanced disease, digital ulceration from the combination of vasospasm and skin fibrosis.

Management addresses each specific organ system affected, vasodilator therapy for Raynaud's phenomenon and digital ulceration, proton pump inhibitor therapy for the oesophageal dysmotility this condition frequently produces, and specific pulmonary and renal disease-directed treatment where these more serious organ complications develop, and this genuinely organ-by-organ management approach reflects the wide-ranging, multi-system nature of systemic sclerosis already established in the previous sub-Part.

Fill in the blank: Sclerodactyly produces tapering, tight fingers with reduced _____ from progressive skin thickening.

3.3.3 mixed connective tissue disease

Overlapping features from several distinct connective tissue disorders

Mixed connective tissue disease, presenting with overlapping features of systemic lupus erythematosus, systemic sclerosis, and the myositis conditions discussed later in this Series, is genuinely defined by the presence of a specific autoantibody, **anti-U1 ribonucleoprotein antibody**, at high titre, alongside this characteristic clinical overlap pattern, a genuinely distinct diagnostic entity rather than simply an imprecise combination of several separate diagnoses.

Clinical presentation genuinely varies considerably between affected individuals, often beginning with Raynaud's phenomenon and swollen hands, and evolving over time to display features more characteristic of one or another of the overlapping conditions it draws from, and management follows the same organ-specific, individualised principles already established for the component conditions this overlap syndrome shares features with, closing this Part's coverage of the connective tissue disorder family.

Fill in the blank: Mixed connective tissue disease is genuinely defined by the presence of anti-U1 ribonucleoprotein _____ at high titre.

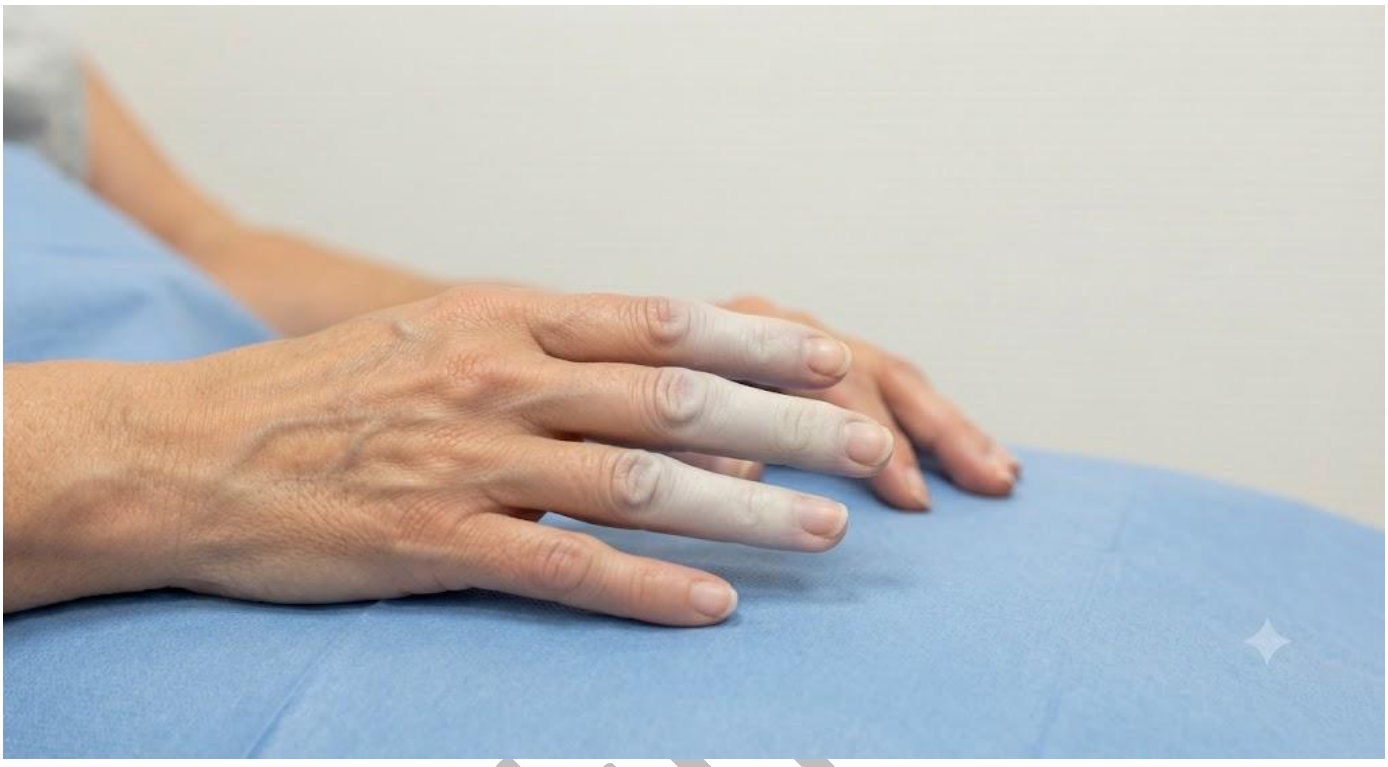

Figure 3.2: Raynaud's phenomenon showing characteristic colour change of the fingers.

Pilot questions 3.3

1. Describe the pathophysiology of systemic sclerosis. (Linked to SLO 3.5)
2. Distinguish limited from diffuse cutaneous systemic sclerosis. (Linked to SLO 3.5)
3. Describe Raynaud's phenomenon. (Linked to SLO 3.5)
4. Describe sclerodactyly. (Linked to SLO 3.5)
5. Describe mixed connective tissue disease and its defining antibody. (Linked to SLO 3.6)

3.4 Dermatomyositis and Polymyositis

3.4.1 pathophysiology of dermatomyositis and polymyositis

Two related, but genuinely distinct, inflammatory muscle diseases

Polymyositis and **dermatomyositis**, both idiopathic inflammatory myopathies producing progressive proximal muscle weakness, share considerable clinical overlap but differ in their underlying immunopathology, dermatomyositis reflecting a humoral, antibody-mediated process primarily targeting small blood vessels supplying muscle and skin, while polymyositis reflects a more directly cell-mediated attack against the muscle fibres themselves.

This underlying pathophysiological distinction directly explains the genuinely characteristic cutaneous features accompanying dermatomyositis but genuinely absent in polymyositis, discussed further in the following sub-Part, and dermatomyositis carries a genuinely meaningful, well-recognised association with underlying malignancy in a proportion of adult-onset cases, a genuinely important clinical consideration this Series's coverage aims to establish firmly.

Fill in the blank: Dermatomyositis reflects a humoral, antibody-mediated process primarily targeting small blood vessels supplying muscle and _____.

3.4.2 clinical presentation of dermatomyositis and polymyositis

Weakness common to both, distinctive skin signs unique to one

Both conditions present with **progressive, symmetrical proximal muscle weakness**, affecting shoulder and hip girdle muscles, producing genuine difficulty rising from a seated position or raising the arms above the head, a pattern already discussed in relation to myopathy generally in an earlier course of this programme covering neurology, and this specific pattern of weakness, rather than distal or asymmetrical involvement, is genuinely characteristic of both these inflammatory myopathies.

Dermatomyositis-specific cutaneous features, absent in polymyositis, include the **heliotrope rash**, a violet discolouration of the upper eyelids, and **Gottron's papules**, raised, scaly lesions over the knuckles, both genuinely characteristic and diagnostically valuable findings that immediately point towards dermatomyositis specifically rather than polymyositis when present alongside the shared pattern of proximal muscle weakness.

Fill in the blank: The heliotrope rash is a violet discolouration of the upper _____, characteristic of dermatomyositis.

3.4.3 diagnosis and management of dermatomyositis and polymyositis

Confirming muscle inflammation and excluding an underlying malignancy

Diagnosis combines the characteristic clinical pattern with elevated **creatine kinase**, reflecting muscle breakdown, specific myositis-associated autoantibodies, and, where the diagnosis remains genuinely uncertain, muscle biopsy providing definitive histological confirmation, and, given the malignancy association already discussed for dermatomyositis specifically, appropriate age-related cancer screening should genuinely be actively considered at diagnosis in adult-onset cases.

Management centres on immunosuppressive therapy, typically corticosteroids as first-line treatment, with steroid-sparing immunosuppressive agents added for patients requiring longer-term treatment or those with disease inadequately controlled on corticosteroids alone, and physiotherapy, supporting functional recovery and preventing the muscle deconditioning that prolonged weakness and reduced activity can otherwise produce, closing this Series and this course's coverage of the connective tissue disorder family on the same theme of comprehensive, multidisciplinary management already emphasised throughout this whole course.

Fill in the blank: Appropriate age-related cancer screening should genuinely be actively considered at diagnosis in adult-onset _____.

Table 3.2: Comparing dermatomyositis and polymyositis

Feature	Dermatomyositis	Polymyositis
Underlying mechanism	Antibody-mediated, vessel-targeted	Cell-mediated, muscle-targeted
Cutaneous features	Heliotrope rash, Gottron's papules	Absent
Malignancy association	Meaningfully increased in adult-onset disease	Less strongly associated

Pilot questions 3.4

1. Distinguish the underlying pathophysiology of dermatomyositis from polymyositis. (Linked to SLO 3.7)
2. Describe the pattern of muscle weakness shared by both conditions. (Linked to SLO 3.7)
3. Describe the heliotrope rash and Gottron's papules. (Linked to SLO 3.7)
4. Describe the diagnostic approach to suspected dermatomyositis or polymyositis. (Linked to SLO 3.8)
5. Explain why cancer screening is genuinely important in adult-onset dermatomyositis. (Linked to SLO 3.8)

Series Summary

This Series covered osteoarthritis and the connective tissue disorders. Part 3.1 covered the pathophysiology, presentation, investigation, and management of osteoarthritis, while Part 3.2

turned to systemic lupus erythematosus. Part 3.3 covered systemic sclerosis and mixed connective tissue disease, and Part 3.4 closed with dermatomyositis and polymyositis.

You should now be able to describe and manage osteoarthritis and the connective tissue disorders covered across all four Parts of this Series, meeting the outcomes set for this Series. Series 4 turns next to giant cell arteritis, rehabilitation, and physiological and psychosocial changes in old age.

Glossary of Terms

1. **Anti-double-stranded DNA antibody:** an autoantibody specific for systemic lupus erythematosus, tracking disease activity.
2. **Bouchard's node:** bony swelling at the proximal interphalangeal joints in hand osteoarthritis.
3. **Gottron's papules:** raised, scaly lesions over the knuckles, characteristic of dermatomyositis.
4. **Heberden's node:** bony swelling at the distal interphalangeal joints in hand osteoarthritis.
5. **Heliotrope rash:** violet discolouration of the upper eyelids, characteristic of dermatomyositis.
6. **Malar rash:** a butterfly-shaped facial rash sparing the nasolabial folds, seen in lupus.
7. **Mixed connective tissue disease:** an overlap syndrome defined by anti-U1 ribonucleoprotein antibody.
8. **Osteoarthritis:** the most common form of arthritis, from cartilage degeneration and bone remodelling.
9. **Raynaud's phenomenon:** episodic digital vasospasm producing characteristic colour change.
10. **Sclerodactyly:** tapering, tight fingers with reduced mobility from skin fibrosis.
11. **Systemic lupus erythematosus:** a multi-system autoimmune disease from immune complex deposition.
12. **Systemic sclerosis:** excessive fibrosis affecting skin and internal organs, also termed scleroderma.

Concept Check Questions [Series 3]

Objective questions

- Osteoarthritis produces new bone formation at joint margins, termed _____. (Linked to SLO 3.1)
- A malar rash is a butterfly-shaped rash across the cheeks and nose bridge, sparing the nasolabial _____. (Linked to SLO 3.3)
- Diffuse cutaneous systemic sclerosis is generally associated with earlier and more significant internal _____ involvement. (Linked to SLO 3.5)
- Mixed connective tissue disease is genuinely defined by the presence of anti-U1 ribonucleoprotein _____ at high titre. (Linked to SLO 3.6)
- The heliotrope rash is a violet discolouration of the upper _____, characteristic of dermatomyositis. (Linked to SLO 3.7)

Short-answer questions

1. Distinguish Heberden's nodes from Bouchard's nodes. (Linked to SLO 3.1)
2. List serious organ manifestations of systemic lupus erythematosus. (Linked to SLO 3.3)
3. Distinguish limited from diffuse cutaneous systemic sclerosis. (Linked to SLO 3.5)
4. Describe Raynaud's phenomenon. (Linked to SLO 3.5)
5. Explain why cancer screening is genuinely important in adult-onset dermatomyositis. (Linked to SLO 3.8)

Long-answer questions

6. Discuss the pathophysiology, presentation, investigation, and management of osteoarthritis. (Linked to SLO 3.1, 3.2)
7. Describe the pathophysiology, presentation, diagnosis, and management of systemic lupus erythematosus. (Linked to SLO 3.3, 3.4)
8. Discuss the pathophysiology, classification, and presentation of systemic sclerosis and describe mixed connective tissue disease. (Linked to SLO 3.5, 3.6)
9. Describe the pathophysiology and clinical presentation of dermatomyositis and polymyositis. (Linked to SLO 3.7)
10. Discuss the diagnosis and management of dermatomyositis and polymyositis. (Linked to SLO 3.8)

Answers to Concept Check Questions [Series 3]

Objective questions

11. Osteophytes.
12. Folds.
13. Organ.
14. Antibody.
15. Eyelids.

Short-answer questions

16. Heberden's nodes occur at distal interphalangeal joints, while Bouchard's nodes occur at proximal interphalangeal joints.
17. Manifestations include lupus nephritis and neuropsychiatric involvement including seizure or psychosis.
18. Limited cutaneous disease is confined to hands, forearms, and face, while diffuse disease extends to the trunk and proximal limbs.
19. Raynaud's phenomenon is episodic digital vasospasm producing white, then blue, then red colour change.
20. Dermatomyositis carries a meaningful malignancy association in adult-onset disease, warranting active screening.

Long-answer questions

21. **Basic response:** Osteoarthritis results from cartilage degeneration and osteophyte formation, presenting with mechanical joint pain and Heberden's or Bouchard's nodes; diagnosis is largely clinical, with management prioritising non-pharmacological measures before surgery.

    Value-added response: A value-added response notes that imaging findings frequently correlate only loosely with actual symptom severity.

22. **Basic response:** Systemic lupus erythematosus results from immune complex deposition affecting multiple organs, presenting with malar rash, non-erosive arthritis, and serious renal or neuropsychiatric involvement; diagnosis uses antinuclear and anti-dsDNA antibodies, with individualised immunosuppressive management.

    Value-added response: A value-added response notes that anti-dsDNA antibody titres can serve a monitoring role given their correlation with disease activity.

23. **Basic response:** Systemic sclerosis causes excessive fibrosis, classified as limited or diffuse cutaneous disease with differing organ risk; mixed connective tissue disease presents with overlapping features and is defined by anti-U1 RNP antibody.

    Value-added response: A value-added response notes that limited cutaneous disease still carries specific pulmonary arterial hypertension risk despite its milder skin involvement.

24. **Basic response:** Dermatomyositis involves antibody-mediated vessel-targeted injury, while polymyositis involves cell-mediated muscle injury; both cause proximal muscle weakness, with dermatomyositis additionally showing heliotrope rash and Gottron's papules.

    Value-added response: A value-added response notes that dermatomyositis carries a genuinely meaningful malignancy association in adult-onset disease.

25. **Basic response:** Diagnosis combines clinical pattern with elevated creatine kinase, myositis autoantibodies, and biopsy where needed; management uses corticosteroids with steroid-sparing agents and physiotherapy.

    Value-added response: A value-added response notes that appropriate age-related cancer screening should be actively considered at diagnosis in adult-onset dermatomyositis.

Answers to Pilot Questions [Series 3]

Part 3.1

1. Osteoarthritis results from cartilage degeneration accompanied by osteophyte and subchondral bone changes.
2. Risk factors include age, obesity, previous joint injury, and genetic predisposition.
3. Osteoarthritis pain is mechanical, worse with activity and relieved by rest, with brief morning stiffness.
4. Heberden's nodes occur at distal interphalangeal joints, while Bouchard's nodes occur at proximal interphalangeal joints.
5. Management prioritises non-pharmacological measures and analgesia, with surgery reserved for refractory disease.

Part 3.2

6. Systemic lupus erythematosus results from loss of immune tolerance and immune complex deposition across organs.
7. The malar rash is a butterfly-shaped facial rash sparing the nasolabial folds.
8. Lupus arthritis is typically non-erosive, unlike the erosive joint damage of rheumatoid arthritis.
9. Manifestations include lupus nephritis and neuropsychiatric involvement.
10. Antinuclear antibody is sensitive but non-specific, while anti-dsDNA is more specific and tracks disease activity.

Part 3.3

11. Systemic sclerosis results from excessive collagen deposition driven by autoimmune activation and vascular injury.
12. Limited disease is confined to hands, forearms, and face, while diffuse disease extends to the trunk and proximal limbs.
13. Raynaud's phenomenon is episodic digital vasospasm producing white, blue, then red colour change.
14. Sclerodactyly is tapering, tight fingers with reduced mobility from progressive skin thickening.
15. Mixed connective tissue disease is an overlap syndrome defined by anti-U1 ribonucleoprotein antibody at high titre.

Part 3.4

1. Dermatomyositis is antibody-mediated and vessel-targeted, while polymyositis is cell-mediated and muscle-targeted.
2. Both cause progressive, symmetrical proximal muscle weakness affecting shoulder and hip girdle muscles.
3. The heliotrope rash is violet eyelid discolouration; Gottron's papules are raised, scaly knuckle lesions.
4. Diagnosis combines clinical pattern, elevated creatine kinase, myositis antibodies, and biopsy where uncertain.
5. Dermatomyositis carries a meaningful malignancy association in adult-onset disease, warranting active screening.

References and Attributions [Series 3]

1. Kumar, P., & Clark, M. (2020). Kumar and Clark's Clinical Medicine (10th ed.). Elsevier.
2. Hochberg, M. C., Gravallese, E. M., Smolen, J. S., van der Heijde, D., Weinblatt, M. E., & Weisman, M. H. (2019). Rheumatology (7th ed.). Elsevier.
3. American College of Rheumatology (2019). Guideline for the Screening, Treatment, and Management of Lupus Nephritis. Arthritis Care and Research.
4. European Alliance of Associations for Rheumatology (2020). Recommendations for the Treatment of Systemic Sclerosis. Annals of the Rheumatic Diseases.

Figures, Plates, Tables, and Boxes

1. Figure 3.1: Heberden's nodes, bony swelling at the distal interphalangeal joints in hand osteoarthritis. AI-generated using the prompt: "Create a realistic clinical illustration titled Heberden's Nodes in Hand Osteoarthritis, showing a patient's hand with visible bony swelling at the distal interphalangeal joints of several fingers, clinical examination setting, respectful and clinical in tone. Clean clinical illustration style, no text."
2. Table 3.1: Key clinical and serological features of systemic lupus erythematosus. AI-generated using the prompt: "Create a clean reference table titled Key Clinical and Serological Features of Systemic Lupus Erythematosus, listing feature, finding, and clinical relevance. Simple clinical reference table style with outside border."
3. Figure 3.2: Raynaud's phenomenon showing characteristic colour change of the fingers. AI-generated using the prompt: "Create a realistic clinical illustration titled Raynaud's Phenomenon, showing a close-up view of a patient's hand with several fingers displaying pale, whitish discolouration compared with the patient's normal skin tone, clean neutral background. Clean clinical illustration style, no text."
4. Table 3.2: Comparing dermatomyositis and polymyositis. AI-generated using the prompt: "Create a clean reference table titled Comparing Dermatomyositis and Polymyositis, listing feature, dermatomyositis, and polymyositis. Simple clinical reference table style with outside border."

Course code: MED 610

Course title: Rheumatology and Care of the Elderly

Course credit load: 2 Units

Series 4: Giant Cell Arteritis, Rehabilitation, and Physiological and Psychosocial Changes in Old Age

- **Part 4.1: Giant Cell Arteritis and Polymyalgia Rheumatica**
  - Sub Part 4.1.1: Pathophysiology of giant cell arteritis
  - Sub Part 4.1.2: Clinical presentation and diagnosis of giant cell arteritis
  - Sub Part 4.1.3: Management of giant cell arteritis and its association with polymyalgia rheumatica
- **Part 4.2: Principles of Rehabilitation in Rheumatological Disease**
  - Sub Part 4.2.1: Goals and principles of rehabilitation
  - Sub Part 4.2.2: The multidisciplinary rehabilitation team
  - Sub Part 4.2.3: Rehabilitation across the course of chronic rheumatological disease
- **Part 4.3: Physiological Changes in Old Age**
  - Sub Part 4.3.1: Physiological changes affecting major organ systems
  - Sub Part 4.3.2: Musculoskeletal and sensory changes in old age
  - Sub Part 4.3.3: Pharmacokinetic and pharmacodynamic changes in old age
- **Part 4.4: Psychosocial Changes in Old Age**
  - Sub Part 4.4.1: Psychological changes and adjustment in old age
  - Sub Part 4.4.2: Social changes and their impact on the elderly
  - Sub Part 4.4.3: Principles of holistic assessment of the older person

Introduction

This Series closes the rheumatological content of this course with **giant cell arteritis**, a genuine ophthalmological and rheumatological emergency, and **rehabilitation**, the coordinated, multidisciplinary process supporting function across the chronic conditions this course has covered, before turning to this course's second major subject, **care of the elderly**, beginning with the physiological and psychosocial changes that genuinely distinguish older patients from the general adult population covered elsewhere in this programme.

The aim of this Series is to equip you with an understanding of the pathophysiology, presentation, diagnosis, and management of giant cell arteritis and its association with polymyalgia rheumatica, the principles and multidisciplinary team involved in rehabilitation, the physiological changes affecting major organ systems, musculoskeletal and sensory function, and pharmacokinetics in old age, and the psychological, social, and holistic assessment considerations relevant to the older person.

This Series opens with **giant cell arteritis and polymyalgia rheumatica**, moves through **principles of rehabilitation in rheumatological disease** and **physiological changes in old age**, and closes with **psychosocial changes in old age**.

Series Learning Outcomes

At the end of this Series, you should be able to:

- **SLO 4.1:** describe the pathophysiology and clinical presentation of giant cell arteritis
- **SLO 4.2:** discuss the diagnosis and management of giant cell arteritis and its association with polymyalgia rheumatica
- **SLO 4.3:** describe the goals, principles, and multidisciplinary team involved in rehabilitation
- **SLO 4.4:** discuss rehabilitation across the course of chronic rheumatological disease
- **SLO 4.5:** describe the physiological changes affecting major organ systems, and musculoskeletal and sensory changes, in old age
- **SLO 4.6:** discuss pharmacokinetic and pharmacodynamic changes in old age
- **SLO 4.7:** describe the psychological and social changes occurring in old age
- **SLO 4.8:** discuss the principles of holistic assessment of the older person

4.1 Giant Cell Arteritis and Polymyalgia Rheumatica

4.1.1 pathophysiology of giant cell arteritis

Granulomatous inflammation of medium and large arteries

Giant cell arteritis, granulomatous inflammation predominantly affecting medium and large arteries, most characteristically the temporal artery and other extracranial branches of the carotid artery, occurs almost exclusively in patients over fifty, with incidence rising considerably with advancing age thereafter, reflecting a genuinely distinct age-related pathophysiological susceptibility this condition demonstrates compared with most other conditions covered earlier in this course.

The underlying inflammatory process causes vessel wall thickening and luminal narrowing, and, when this affects arteries supplying the eye, carries the genuine risk of sudden, potentially permanent visual loss discussed further in the following sub-Part, making giant cell arteritis a genuine medical emergency requiring urgent recognition rather than a condition that can safely await routine, unhurried specialist assessment.

Fill in the blank: Giant cell arteritis occurs almost exclusively in patients over _____.

4.1.2 clinical presentation and diagnosis of giant cell arteritis

A new headache that must never be dismissed in this age group

Giant cell arteritis classically presents with new, severe headache, typically temporal in location, alongside **scalp tenderness**, sometimes noticed when combing hair, **jaw claudication**, pain in the jaw muscles brought on by chewing and relieved by rest, reflecting the same ischaemic mechanism already discussed for limb claudication in an earlier course of this programme, and, critically, visual disturbance, ranging from transient visual loss to sudden, permanent blindness if the diagnosis is missed.

Diagnosis combines this characteristic clinical presentation with markedly elevated inflammatory markers, and **temporal artery biopsy**, obtaining a segment of the affected artery for histological confirmation of the characteristic granulomatous inflammation, though treatment, discussed in the following sub-Part, should genuinely never be delayed awaiting biopsy confirmation given the time-critical risk of visual loss this condition carries.

Fill in the blank: Jaw claudication is pain in the jaw muscles brought on by chewing and relieved by _____.

4.1.3 management of giant cell arteritis and its association with polymyalgia rheumatica

Immediate treatment given the genuine urgency of visual loss risk

High-dose corticosteroid therapy should be initiated immediately once giant cell arteritis is genuinely suspected on clinical grounds, without waiting for biopsy confirmation, given the genuine, time-critical risk of irreversible visual loss already discussed, and this immediate treatment approach represents one of the clearest examples in the whole of medicine where clinical suspicion alone genuinely justifies urgent treatment ahead of definitive diagnostic confirmation.

Polymyalgia rheumatica, presenting with bilateral shoulder and hip girdle pain and stiffness, genuinely overlaps with giant cell arteritis, occurring together in a meaningful proportion of patients, and any patient presenting with polymyalgia rheumatica should be actively, deliberately screened for the specific symptoms of giant cell arteritis already discussed, given the genuine risk of overlooking this genuinely more urgent, sight-threatening associated condition.

Fill in the blank: Polymyalgia rheumatica presents with bilateral shoulder and hip girdle pain and _____.

Figure 4.1: A clinician palpating the temporal artery during examination for suspected giant cell arteritis.

Pilot questions 4.1

- Describe the pathophysiology of giant cell arteritis. (Linked to SLO 4.1)
- Describe the classic clinical presentation of giant cell arteritis. (Linked to SLO 4.1)
- Describe jaw claudication. (Linked to SLO 4.1)
- Explain why corticosteroid treatment should not wait for biopsy confirmation. (Linked to SLO 4.2)
- Describe the association between giant cell arteritis and polymyalgia rheumatica. (Linked to SLO 4.2)

4.2 Principles of Rehabilitation in Rheumatological Disease

4.2.1 goals and principles of rehabilitation

Restoring and maintaining function alongside disease-directed treatment

Rehabilitation aims to maximise functional independence and quality of life for patients living with chronic rheumatological disease, working alongside, rather than as a substitute for, the disease-modifying pharmacological treatment already discussed across earlier Series of this course, and this genuinely complementary relationship between disease control and functional rehabilitation underlies effective, comprehensive long-term management of any chronic rheumatological condition.

Rehabilitation goals are genuinely individualised according to the specific patient's disease, functional limitations, and personal priorities, and a structured, goal-oriented approach, regularly reviewed and adjusted as the patient's condition and circumstances change over time, genuinely produces better outcomes than an unstructured, reactive approach addressing functional problems only once they have already become significantly established and disabling.

Fill in the blank: Rehabilitation goals are genuinely individualised according to the specific patient's disease, functional limitations, and personal _____.

4.2.2 the multidisciplinary rehabilitation team

A coordinated team, already introduced but genuinely worth consolidating here

The rehabilitation team, already introduced in Series 1 of this course in the context of inflammatory arthritis management, includes physiotherapy, addressing mobility, strength, and joint function, occupational therapy, addressing activities of daily living and joint protection, and, where relevant, podiatry, speech and language therapy, and psychological support, a genuinely comprehensive team whose specific composition is tailored to each individual patient's particular functional needs.

Coordinated team communication, ensuring each team member's input is genuinely integrated into a single, coherent overall rehabilitation plan rather than delivered as disconnected, uncoordinated individual interventions, is genuinely essential to effective multidisciplinary rehabilitation, and this coordinated approach, rather than simply assembling the right team members, is what genuinely determines whether multidisciplinary rehabilitation achieves its intended benefit for the patient.

Fill in the blank: Coordinated team communication ensures each team member's input is genuinely integrated into a single, coherent overall rehabilitation _____.

4.2.3 rehabilitation across the course of chronic rheumatological disease

A genuinely evolving process, not a single, fixed intervention

Rehabilitation needs genuinely evolve across the course of chronic rheumatological disease, from early education and joint protection advice at diagnosis, through active functional support during periods of disease flare or following joint surgery already discussed in Series 3, to longer-term maintenance rehabilitation supporting sustained function as the patient's disease and circumstances continue to change over months and years of ongoing care.

Regular functional reassessment, rather than a single rehabilitation plan established at diagnosis and left unchanged thereafter, genuinely allows the rehabilitation approach to remain appropriately matched to the patient's current needs, and this dynamic, responsive approach to rehabilitation, closing this Part's coverage, directly connects the rheumatological content of this course to the equally dynamic, evolving care needs of the older patient population this Series now turns towards.

Fill in the blank: Regular functional reassessment allows the rehabilitation approach to remain appropriately matched to the patient's current _____.

Table 4.1: The multidisciplinary rehabilitation team and their focus

Team member	Primary focus	Example intervention
Physiotherapy	Mobility, strength, joint function	Structured exercise programme
Occupational therapy	Activities of daily living, joint protection	Assistive equipment provision
Psychological support	Mental wellbeing, coping strategies	Structured counselling

Pilot questions 4.2

1. Describe the goals of rehabilitation in chronic rheumatological disease. (Linked to SLO 4.3)
2. List members of the multidisciplinary rehabilitation team. (Linked to SLO 4.3)
3. Explain why coordinated team communication genuinely matters in rehabilitation. (Linked to SLO 4.3)
4. Describe how rehabilitation needs evolve across the course of chronic disease. (Linked to SLO 4.4)
5. Explain the value of regular functional reassessment. (Linked to SLO 4.4)

4.3 Physiological Changes in Old Age

4.3.1 physiological changes affecting major organ systems

A genuinely widespread pattern of reduced physiological reserve

Ageing produces genuinely widespread physiological change across major organ systems, including reduced cardiac reserve and declining maximal heart rate, reduced glomerular filtration rate affecting renal drug clearance, and reduced respiratory reserve, changes that, while genuinely not producing overt disease in themselves, meaningfully reduce the older person's physiological reserve and capacity to compensate for acute illness or physiological stress.

This genuinely reduced physiological reserve directly explains why older patients can deteriorate more rapidly and less predictably during acute illness compared with younger adults, and why apparently minor illness or injury can genuinely precipitate significant functional decline in an older person whose baseline physiological reserve was already meaningfully reduced before the

acute problem even began, a theme this Series returns to repeatedly across its remaining coverage.

Fill in the blank: Ageing produces reduced glomerular filtration rate affecting renal drug _____.

4.3.2 musculoskeletal and sensory changes in old age

Changes directly relevant to the rheumatological content of this course

Sarcopenia, progressive age-related loss of muscle mass and strength, and reduced bone density, already discussed in the context of osteoporosis risk elsewhere in this programme, together contribute meaningfully to reduced mobility and increased falls risk in older age, and these specific musculoskeletal changes directly connect this Series's care of the elderly content back to the rheumatological foundation already established across earlier Series of this course.

Sensory changes, including reduced visual acuity, hearing loss, and reduced proprioception, further contribute to falls risk and can genuinely impair an older person's ability to safely navigate their environment or accurately report symptoms during clinical assessment, making active, deliberate screening for these specific sensory changes a genuinely important, easily overlooked component of comprehensive assessment of the older patient.

Fill in the blank: Sarcopenia is progressive age-related loss of muscle mass and _____.

4.3.3 pharmacokinetic and pharmacodynamic changes in old age

Why medication genuinely behaves differently in older patients

Pharmacokinetic changes in old age, including reduced hepatic and renal drug clearance already introduced earlier in this Part, and altered body composition affecting drug distribution, particularly increased fat and reduced lean body mass affecting the distribution of fat-soluble and water-soluble medications respectively, together meaningfully alter how a given medication dose is processed and eliminated compared with a younger adult.

Pharmacodynamic changes, altered tissue sensitivity to a given medication concentration, mean older patients can experience a genuinely more pronounced effect, and correspondingly greater side effect risk, from the same medication dose compared with a younger patient, and this combination of pharmacokinetic and pharmacodynamic change genuinely underlies the well-recognised principle of starting medication at a lower dose and titrating more cautiously in older patients across virtually every area of medicine.

Fill in the blank: Pharmacodynamic changes describe altered tissue _____ to a given medication concentration in old age.

Pilot questions 4.3

1. Describe physiological changes affecting the cardiac and renal systems in old age. (Linked to SLO 4.5)
2. Explain why reduced physiological reserve matters clinically during acute illness. (Linked to SLO 4.5)
3. Describe sarcopenia. (Linked to SLO 4.5)
4. List sensory changes that occur in old age. (Linked to SLO 4.5)
5. Describe pharmacokinetic and pharmacodynamic changes in old age and their clinical implication. (Linked to SLO 4.6)

4.4 Psychosocial Changes in Old Age

4.4.1 psychological changes and adjustment in old age

Genuine adaptation, alongside genuine vulnerability

Old age brings genuinely significant psychological adjustment, including adapting to retirement, changing family roles, and, genuinely importantly, the cumulative experience of loss, bereavement of a spouse, close friends, and, sometimes, independence itself, and, while many older individuals genuinely adapt well to these changes, drawing on accumulated life experience and resilience, a meaningful proportion experience genuine psychological distress requiring active recognition and support.

Recognising the difference between a genuinely understandable, proportionate emotional response to these significant life changes and a clinically significant mental health concern requiring specific intervention, discussed further in a later Series of this course dedicated specifically to psychiatric disorders of the elderly, is a genuinely important clinical skill this Part introduces before that more detailed coverage follows.

Fill in the blank: A meaningful proportion of older individuals experience genuine psychological distress requiring active recognition and _____.

4.4.2 social changes and their impact on the elderly

A genuinely widening circle of social and practical challenge

Social isolation, resulting from bereavement, reduced mobility, retirement from the workplace, and the loss of a previously established social network, is a genuinely common and significant concern in old age, with meaningful, well-recognised associations with both physical and mental health decline, making active screening for social isolation a genuinely important, though sometimes overlooked, component of comprehensive assessment of the older person.

Financial and housing concerns, changing family support structures, and the genuine practical challenges of managing chronic illness or reduced mobility within an unsuitable home environment further contribute to the genuinely wide-ranging social challenges many older individuals face, and addressing these social dimensions, alongside purely medical concerns, forms a genuinely essential part of comprehensive care for this specific patient population.

Fill in the blank: Social isolation shows meaningful, well-recognised associations with both physical and mental health _____.

4.4.3 principles of holistic assessment of the older person

Bringing the medical, functional, and social threads together

Comprehensive geriatric assessment, a structured, multidimensional evaluation covering medical, functional, psychological, and social domains together, rather than a purely medical assessment addressing physical illness in isolation, has been genuinely, consistently shown to improve outcomes for older patients, reflecting the genuinely interconnected nature of the physiological, psychological, and social changes covered throughout this Series.

This holistic, structured approach, drawing together the physiological changes, musculoskeletal and sensory considerations, and psychosocial factors covered across this whole Series, closes this Series's introduction to care of the elderly on a genuinely unifying theme, and forms the foundational assessment framework this course's remaining Series build upon as they progress through the specific medical, surgical, psychiatric, nutritional, and legal considerations relevant to comprehensive elderly care.

Fill in the blank: Comprehensive geriatric assessment covers medical, functional, psychological, and _____ domains together.

Figure 4.2: A clinician conducting a comprehensive geriatric assessment with an older patient.

Table 4.2: Domains of comprehensive geriatric assessment

Domain	Focus	Example consideration
Medical	Diagnoses, medication review	Polypharmacy and drug interactions
Functional	Mobility, activities of daily living	Falls risk, need for equipment
Psychosocial	Mood, cognition, social support	Isolation, bereavement, housing

Pilot questions 4.4

1. Describe the genuine psychological adjustments common in old age. (Linked to SLO 4.7)
2. Explain why recognising proportionate emotional response versus clinically significant distress matters. (Linked to SLO 4.7)
3. Describe social isolation and its impact on the elderly. (Linked to SLO 4.7)
4. List social challenges commonly affecting older individuals. (Linked to SLO 4.7)
5. Describe comprehensive geriatric assessment and its domains. (Linked to SLO 4.8)

Series Summary

This Series closed the rheumatological coverage of this course and opened its second major subject, care of the elderly. Part 4.1 covered giant cell arteritis and its association with polymyalgia rheumatica, while Part 4.2 turned to the principles of rehabilitation in rheumatological disease. Part 4.3 covered the physiological changes of old age, and Part 4.4 closed with the psychosocial changes of old age and holistic assessment.

You should now be able to describe and manage giant cell arteritis, describe rehabilitation principles, and describe the physiological and psychosocial changes of old age across all four Parts of this Series, meeting the outcomes set for this Series. Series 5 turns next to medical, surgical, and psychiatric disorders, nutrition, and competence issues in the elderly.

Glossary of Terms

1. **Comprehensive geriatric assessment:** a structured, multidimensional evaluation covering medical, functional, and social domains.
2. **Giant cell arteritis:** granulomatous inflammation of medium and large arteries, a genuine emergency.
3. **Jaw claudication:** jaw muscle pain on chewing, relieved by rest, a feature of giant cell arteritis.
4. **Multidisciplinary team:** a coordinated group of professionals addressing different aspects of patient care.
5. **Pharmacodynamic change:** altered tissue sensitivity to a given medication concentration.
6. **Pharmacokinetic change:** altered drug absorption, distribution, metabolism, or elimination.
7. **Physiological reserve:** the capacity to compensate for acute illness or physiological stress.
8. **Polymyalgia rheumatica:** bilateral shoulder and hip girdle pain and stiffness, associated with giant cell arteritis.
9. **Rehabilitation:** a coordinated process aiming to maximise functional independence and quality of life.
10. **Sarcopenia:** progressive age-related loss of muscle mass and strength.
11. **Social isolation:** reduced social contact, associated with physical and mental health decline in old age.

12. **Temporal artery biopsy:** histological sampling of the temporal artery to confirm giant cell arteritis.

Concept Check Questions [Series 4]

Objective questions

- Giant cell arteritis occurs almost exclusively in patients over _____. (Linked to SLO 4.1)
- Coordinated team communication ensures each team member's input is genuinely integrated into a single, coherent overall rehabilitation _____. (Linked to SLO 4.3)
- Ageing produces reduced glomerular filtration rate affecting renal drug _____. (Linked to SLO 4.5)
- Pharmacodynamic changes describe altered tissue _____ to a given medication concentration in old age. (Linked to SLO 4.6)
- Comprehensive geriatric assessment covers medical, functional, psychological, and _____ domains together. (Linked to SLO 4.8)

Short-answer questions

1. Describe jaw claudication. (Linked to SLO 4.1)
2. Describe the association between giant cell arteritis and polymyalgia rheumatica. (Linked to SLO 4.2)
3. List members of the multidisciplinary rehabilitation team. (Linked to SLO 4.3)
4. Describe sarcopenia. (Linked to SLO 4.5)
5. Describe social isolation and its impact on the elderly. (Linked to SLO 4.7)

Long-answer questions

6. Discuss the pathophysiology, presentation, diagnosis, and management of giant cell arteritis and its association with polymyalgia rheumatica. (Linked to SLO 4.1, 4.2)
7. Describe the goals, principles, and multidisciplinary team involved in rehabilitation across chronic rheumatological disease. (Linked to SLO 4.3, 4.4)
8. Discuss the physiological changes affecting major organ systems, and musculoskeletal, sensory, and pharmacokinetic function, in old age. (Linked to SLO 4.5, 4.6)
9. Describe the psychological and social changes occurring in old age. (Linked to SLO 4.7)
10. Discuss the principles of holistic assessment of the older person. (Linked to SLO 4.8)

Answers to Concept Check Questions [Series 4]

Objective questions

11. Fifty.
12. Plan.
13. Clearance.
14. Sensitivity.
15. Social.

Short-answer questions

16. Jaw claudication is jaw muscle pain brought on by chewing and relieved by rest.
17. The two conditions genuinely overlap, occurring together in a meaningful proportion of patients.
18. The team includes physiotherapy, occupational therapy, podiatry, speech and language therapy, and psychological support.
19. Sarcopenia is progressive age-related loss of muscle mass and strength.
20. Social isolation shows meaningful associations with both physical and mental health decline.

Long-answer questions

21. **Basic response:** Giant cell arteritis causes granulomatous vessel inflammation presenting with headache, jaw claudication, and visual risk; diagnosis uses inflammatory markers and biopsy; treatment with high-dose corticosteroids should not wait for biopsy; polymyalgia rheumatica genuinely overlaps with this condition.

    Value-added response: A value-added response notes that this is one of the clearest examples where clinical suspicion alone justifies urgent treatment ahead of diagnostic confirmation.

22. **Basic response:** Rehabilitation aims to maximise functional independence, working alongside disease-modifying treatment; the multidisciplinary team includes physiotherapy, occupational therapy, and psychological support; needs evolve across the disease course requiring regular reassessment.

    Value-added response: A value-added response notes that coordinated team communication genuinely determines whether multidisciplinary rehabilitation achieves its intended benefit.

23. **Basic response:** Ageing reduces cardiac, renal, and respiratory reserve; sarcopenia and sensory changes contribute to falls risk; pharmacokinetic and pharmacodynamic changes alter drug handling and effect.

    Value-added response: A value-added response notes that reduced physiological reserve explains why older patients can deteriorate more rapidly during acute illness.

24. **Basic response:** Psychological adjustment includes adapting to retirement, changing roles, and bereavement; social changes include isolation, financial and housing concerns, and changing family support.

    Value-added response: A value-added response notes the importance of distinguishing proportionate emotional response from clinically significant distress requiring intervention.

25. **Basic response:** Comprehensive geriatric assessment is a structured, multidimensional evaluation covering medical, functional, and social domains together, shown to improve outcomes.

    Value-added response: A value-added response notes that this holistic framework forms the foundation for the remaining care of the elderly content in this course.

Answers to Pilot Questions [Series 4]

Part 4.1

1. Giant cell arteritis is granulomatous inflammation of medium and large arteries.
2. Presentation includes new severe headache, scalp tenderness, jaw claudication, and visual disturbance.
3. Jaw claudication is jaw muscle pain on chewing, relieved by rest.
4. Treatment should not be delayed given the genuine, time-critical risk of irreversible visual loss.
5. The two conditions genuinely overlap, occurring together in a meaningful proportion of patients.

Part 4.2

6. Rehabilitation aims to maximise functional independence and quality of life alongside disease-directed treatment.
7. The team includes physiotherapy, occupational therapy, podiatry, speech and language therapy, and psychological support.
8. Coordinated communication ensures each team member's input is integrated into a single, coherent plan.
9. Needs evolve from early education, through flare or post-surgical support, to longer-term maintenance rehabilitation.
10. Regular reassessment keeps the rehabilitation approach matched to the patient's current, evolving needs.

Part 4.3

11. Changes include reduced cardiac reserve and declining glomerular filtration rate affecting renal clearance.
12. Reduced reserve explains why older patients deteriorate more rapidly and unpredictably during acute illness.
13. Sarcopenia is progressive age-related loss of muscle mass and strength.
14. Changes include reduced visual acuity, hearing loss, and reduced proprioception.
15. Pharmacokinetic and pharmacodynamic changes justify starting medication at a lower dose and titrating cautiously.

Part 4.4

1. Adjustments include adapting to retirement, changing family roles, and cumulative experience of loss.
2. This distinction ensures clinically significant distress receives appropriate intervention rather than being dismissed.
3. Social isolation results from bereavement, reduced mobility, and loss of social network, affecting physical and mental health.
4. Challenges include financial and housing concerns and changing family support structures.
5. Comprehensive geriatric assessment covers medical, functional, and psychosocial domains in a structured evaluation.

References and Attributions [Series 4]

1. Kumar, P., & Clark, M. (2020). Kumar and Clark's Clinical Medicine (10th ed.). Elsevier.
2. British Society for Rheumatology (2020). Guideline for the Management of Giant Cell Arteritis. Rheumatology.
3. Fillit, H. M., Rockwood, K., & Young, J. B. (2016). Brocklehurst's Textbook of Geriatric Medicine and Gerontology (8th ed.). Elsevier.
4. British Geriatrics Society (2019). Comprehensive Geriatric Assessment Toolkit. British Geriatrics Society.

Figures, Plates, Tables, and Boxes

1. Figure 4.1: A clinician palpating the temporal artery during examination for suspected giant cell arteritis. AI-generated using the prompt: "Create a realistic clinical illustration titled Temporal Artery Palpation, showing a clinician gently palpating the side of a seated patient's head over the temporal region, clinical examination room setting. Clean clinical illustration style, no text."
2. Table 4.1: The multidisciplinary rehabilitation team and their focus. AI-generated using the prompt: "Create a clean reference table titled The Multidisciplinary Rehabilitation Team and Their Focus, listing team member, primary focus, and example intervention. Simple clinical reference table style with outside border."
3. Figure 4.2: A clinician conducting a comprehensive geriatric assessment with an older patient. AI-generated using the prompt: "Create a realistic clinical illustration titled Comprehensive Geriatric Assessment, showing a clinician seated with an older patient in a consultation room, reviewing notes together in a warm, attentive interaction. Clean clinical illustration style, no text."
4. Table 4.2: Domains of comprehensive geriatric assessment. AI-generated using the prompt: "Create a clean reference table titled Domains of Comprehensive Geriatric Assessment, listing domain, focus, and example consideration. Simple clinical reference table style with outside border."

Course code: MED 610

Course title: Rheumatology and Care of the Elderly

Course credit load: 2 Units

Series 5: Medical, Surgical, and Psychiatric Disorders, Nutrition, and Competence Issues in the Elderly

- **Part 5.1: Medical Disorders of the Elderly**
  - Sub Part 5.1.1: Falls and frailty in the elderly
  - Sub Part 5.1.2: Delirium in the elderly
  - Sub Part 5.1.3: Polypharmacy and adverse drug reactions in the elderly
- **Part 5.2: Surgical Disorders of the Elderly**
  - Sub Part 5.2.1: Perioperative assessment of the older surgical patient
  - Sub Part 5.2.2: Common surgical conditions in the elderly
  - Sub Part 5.2.3: Postoperative complications in the elderly
- **Part 5.3: Psychiatric Disorders of the Elderly**
  - Sub Part 5.3.1: Dementia in old age
  - Sub Part 5.3.2: Depression in old age
  - Sub Part 5.3.3: Distinguishing delirium, dementia, and depression
- **Part 5.4: Nutrition, Competence, and Forensic Issues in the Elderly**
  - Sub Part 5.4.1: Nutrition and malnutrition in the elderly
  - Sub Part 5.4.2: Assessing mental capacity and competence in the elderly
  - Sub Part 5.4.3: Forensic and safeguarding issues in the elderly

Introduction

This final Series closes the course by working through the specific medical, surgical, and psychiatric disorders genuinely characteristic of older age, before turning to nutrition and the genuinely important competence and forensic considerations that distinguish comprehensive elderly care from care of the general adult population covered elsewhere in this programme. Building directly on the physiological and psychosocial foundation established in Series 4, this Series applies that foundation to the specific clinical challenges older patients genuinely present.

The aim of this Series is to equip you with an understanding of falls, frailty, delirium, and polypharmacy in the elderly, the perioperative assessment, common surgical conditions, and postoperative complications of the older surgical patient, dementia and depression in old age and how to distinguish these from delirium, and nutrition, mental capacity, competence, and forensic and safeguarding issues in the elderly.

This Series opens with **medical disorders of the elderly**, moves through **surgical disorders of the elderly** and **psychiatric disorders of the elderly**, and closes with **nutrition, competence, and forensic issues in the elderly**.

Series Learning Outcomes

At the end of this Series, you should be able to:

- **SLO 5.1:** describe falls, frailty, and delirium in the elderly
- **SLO 5.2:** discuss polypharmacy and adverse drug reactions in the elderly
- **SLO 5.3:** describe the perioperative assessment and common surgical conditions of the elderly
- **SLO 5.4:** discuss postoperative complications in the elderly
- **SLO 5.5:** describe dementia and depression in old age
- **SLO 5.6:** discuss distinguishing delirium, dementia, and depression
- **SLO 5.7:** describe nutrition and malnutrition in the elderly
- **SLO 5.8:** discuss mental capacity, competence, and forensic and safeguarding issues in the elderly

5.1 Medical Disorders of the Elderly

5.1.1 falls and frailty in the elderly

A genuinely common, genuinely serious geriatric syndrome

Falls in older people, resulting from a genuinely complex combination of the sensory, musculoskeletal, and other physiological changes already discussed in Series 4, alongside environmental hazards and medication effects, carry genuine risk of significant injury, including hip fracture, and a meaningful, lasting loss of confidence and independence even when a fall itself causes no significant physical harm.

Frailty, a genuinely distinct clinical syndrome of reduced physiological reserve and increased vulnerability to adverse outcomes following a relatively minor stressor event, is genuinely more than simply advanced age or the presence of multiple medical conditions, and identifying frailty through structured assessment allows more accurate anticipation of risk and more appropriately tailored care planning for the individual older patient.

Fill in the blank: Frailty is a genuinely distinct clinical syndrome of reduced physiological reserve and increased vulnerability to adverse outcomes following a relatively minor _____.

5.1.2 delirium in the elderly

An acute confusional state genuinely common in this age group

Delirium, an acute, fluctuating disturbance of consciousness and cognition, already introduced in an earlier course of this programme, is genuinely considerably more common in older patients, particularly those with pre-existing cognitive impairment, and can be precipitated by a genuinely wide range of triggers, including infection, medication, pain, constipation, and unfamiliar hospital environments, each requiring active, structured consideration when delirium is identified.

Hypoactive delirium, presenting with reduced activity and withdrawal rather than the more immediately recognisable agitation of hyperactive delirium, is genuinely more easily overlooked or mistaken for depression, discussed further later in this Series, making active, deliberate screening for delirium using a structured assessment tool genuinely important in any older patient presenting with acute cognitive or behavioural change, rather than relying on obvious agitation alone to trigger recognition.

Fill in the blank: Hypoactive delirium presents with reduced activity and withdrawal, genuinely more easily overlooked than _____ delirium.

5.1.3 polypharmacy and adverse drug reactions in the elderly

Multiple medications, multiplying genuine risk

Polypharmacy, the concurrent use of multiple medications, is genuinely common in older patients given the frequently multiple chronic conditions this population manages, and, while sometimes genuinely clinically appropriate, carries meaningfully increased risk of drug interactions and adverse drug reactions, compounded by the pharmacokinetic and pharmacodynamic changes of old age already discussed in Series 4 of this course.

Medication review, a structured, periodic reassessment of every medication's ongoing indication, appropriate dose, and genuine risk-benefit balance for the individual patient, allows **deprescribing**, the deliberate discontinuation of medication no longer providing genuine net benefit, and this active, structured approach, rather than simply continuing every medication indefinitely once started, genuinely reduces the risk of adverse drug reactions in older patients.

Fill in the blank: Deprescribing is the deliberate discontinuation of medication no longer providing genuine net _____.

Figure 5.1: A clinician observing an older patient's gait and balance during a falls risk assessment.

Pilot questions 5.1

- Describe falls in older people and their genuine consequences. (Linked to SLO 5.1)
- Describe frailty as a distinct clinical syndrome. (Linked to SLO 5.1)
- List triggers that can precipitate delirium. (Linked to SLO 5.1)
- Distinguish hypoactive from hyperactive delirium. (Linked to SLO 5.1)
- Describe medication review and deprescribing. (Linked to SLO 5.2)

5.2 Surgical Disorders of the Elderly

5.2.1 perioperative assessment of the older surgical patient

A genuinely comprehensive assessment beyond fitness for anaesthesia alone

Perioperative assessment of the older surgical patient genuinely extends beyond standard fitness for anaesthesia assessment already covered in an earlier course of this programme, incorporating the comprehensive geriatric assessment framework already introduced in Series 4, actively identifying frailty, cognitive impairment, and functional limitation that meaningfully influence both surgical risk and the specific perioperative care plan required for this specific patient population.

Preoperative optimisation, addressing modifiable risk factors including nutrition, already discussed as a specific concern for this population and covered further later in this Series, and medication review already discussed earlier in this Series, genuinely improves surgical outcomes, and this proactive, structured preparatory approach, rather than addressing risk factors only reactively once complications have already developed, reflects the same genuinely comprehensive care philosophy established throughout this course.

Fill in the blank: Perioperative assessment incorporates the comprehensive geriatric assessment framework to identify frailty, cognitive impairment, and functional _____.

5.2.2 common surgical conditions in the elderly

Conditions with a genuinely distinct age-related pattern

Hip fracture, most commonly resulting from a fall in an older person with reduced bone density, represents a genuinely major cause of morbidity and mortality in this population, and prompt surgical management, typically within a defined, closely monitored timeframe, alongside

comprehensive perioperative geriatric input, genuinely, meaningfully improves outcomes compared with delayed surgical treatment or a purely orthopaedic-focused approach lacking this broader geriatric input.

Other genuinely common surgical conditions in this population include symptomatic gallstone disease, already discussed in an earlier course of this programme, and various malignancies whose incidence rises considerably with advancing age, and, across each of these conditions, the same fundamental principle applies genuinely consistently, that decision-making must weigh the specific surgical benefit against the patient's overall frailty, comorbidity burden, and personal goals of care.

Fill in the blank: Prompt surgical management of hip fracture, alongside comprehensive perioperative geriatric input, genuinely, meaningfully improves _____.

5.2.3 postoperative complications in the elderly

A genuinely heightened risk profile requiring active, anticipatory care

Postoperative delirium, already discussed earlier in this Series in its general form, is a genuinely common and significant postoperative complication in older surgical patients, and proactive, structured measures, including adequate pain control, early mobilisation, and maintaining orientation and normal sleep-wake patterns where genuinely feasible within the hospital environment, meaningfully reduce its incidence.

Functional decline following surgery, a genuinely meaningful loss of independence in activities of daily living compared with the patient's pre-admission baseline, is a further genuinely important postoperative concern in this population, and early, structured rehabilitation input, already introduced in Series 4, alongside proactive prevention of the medical complications already discussed throughout this course, together form a genuinely comprehensive approach to safe, effective postoperative care for the older surgical patient.

Fill in the blank: Functional decline following surgery is a genuinely meaningful loss of independence in activities of daily _____.

Table 5.1: Comparing common surgical conditions and their key perioperative consideration in the elderly

Condition	Typical cause in this population	Key perioperative consideration
Hip fracture	Fall with reduced bone density	Prompt surgery, geriatric input

Gallstone disease	Age-related prevalence	Frailty and comorbidity assessment
Malignancy	Rising incidence with age	Balancing surgical benefit against overall fitness

Pilot questions 5.2

1. Describe how perioperative assessment of the older patient extends beyond standard fitness for anaesthesia. (Linked to SLO 5.3)
2. Describe hip fracture as a common surgical condition in the elderly. (Linked to SLO 5.3)
3. Explain the fundamental principle applying consistently across surgical decision-making in this population. (Linked to SLO 5.3)
4. Describe postoperative delirium and measures to reduce its incidence. (Linked to SLO 5.4)
5. Describe functional decline following surgery. (Linked to SLO 5.4)

5.3 Psychiatric Disorders of the Elderly

5.3.1 dementia in old age

Building on the earlier neurological foundation established elsewhere

Dementia, already discussed in genuine depth in an earlier course of this programme covering neurology, is genuinely central to comprehensive care of the elderly given its rising prevalence with advancing age, and the specific challenges dementia presents in this population, including managing coexisting physical illness, medication, and decision-making capacity, discussed further later in this Series, are genuinely distinct considerations beyond the neurological diagnosis and management already established elsewhere.

Behavioural and psychological symptoms of dementia, including agitation, wandering, and sleep disturbance, present genuinely significant, sometimes distressing management challenges for both the affected individual and their carers, and a structured, individualised approach, addressing potential underlying triggers before resorting to pharmacological management given the genuine risks psychotropic medication carries in this specific population, is genuinely preferred wherever clinically feasible.

Fill in the blank: Behavioural and psychological symptoms of dementia include agitation, wandering, and sleep _____.

5.3.2 depression in old age

A genuinely common, sometimes genuinely under-recognised condition

Depression in old age is genuinely common, though frequently under-recognised, since older patients may present with somatic symptoms, unexplained pain, or fatigue, rather than the mood-focused presentation more classically taught, and genuinely important risk factors specific to this population, including bereavement, social isolation already discussed in Series 4, and chronic physical illness, should actively prompt consideration of this diagnosis.

Management combines psychological therapy and, where genuinely indicated, antidepressant medication, with careful, individualised dose selection reflecting the pharmacokinetic and pharmacodynamic changes of old age already discussed in Series 4, and, given the genuine risk of suicide in older patients with depression, particularly older men, active, deliberate screening for suicidal ideation forms a genuinely essential component of comprehensive assessment in this population.

Fill in the blank: Older patients with depression may present with somatic symptoms, unexplained pain, or fatigue, rather than a classic mood-focused _____.

5.3.3 distinguishing delirium, dementia, and depression

Three genuinely distinct conditions with genuinely overlapping presentations

Distinguishing **delirium**, **dementia**, and **depression**, sometimes described together as the three genuine, overlapping challenges of cognitive and mood assessment in the elderly, relies on careful attention to onset, course, and specific clinical features, delirium characteristically acute and fluctuating, dementia characteristically gradual and progressive, and depression variable but genuinely responsive to specific screening and, importantly, treatment where correctly identified.

Genuinely importantly, these three conditions can coexist within the same patient, a patient with established dementia can develop superimposed delirium during acute illness, or genuine depression alongside either condition, meaning correct diagnosis requires careful, structured clinical assessment rather than assuming a single explanation accounts for the entire clinical picture, a genuinely essential diagnostic discipline this Part aims to firmly establish.

Fill in the blank: Delirium is characteristically acute and fluctuating, while dementia is characteristically gradual and _____.

Table 5.2: Comparing delirium, dementia, and depression

Feature	Delirium	Dementia
Onset	Acute, hours to days	Gradual, months to years
Course	Fluctuating	Progressive, relatively stable day to day
Consciousness	Impaired	Typically preserved until late stages

Pilot questions 5.3

1. Describe behavioural and psychological symptoms of dementia and the preferred management approach. (Linked to SLO 5.5)
2. Explain why depression in old age is frequently under-recognised. (Linked to SLO 5.5)
3. List risk factors for depression specific to older age. (Linked to SLO 5.5)
4. Distinguish delirium from dementia by onset and course. (Linked to SLO 5.6)
5. Explain why these three conditions can coexist in the same patient. (Linked to SLO 5.6)

5.4 Nutrition, Competence, and Forensic Issues in the Elderly

5.4.1 nutrition and malnutrition in the elderly

A genuinely common, genuinely under-recognised concern

Malnutrition is genuinely common in older people, resulting from a genuinely wide range of contributing factors including reduced appetite, dental problems affecting eating, social isolation already discussed in Series 4 reducing motivation to prepare and eat meals, chronic illness, and cognitive impairment affecting the ability to shop for and prepare food, and this genuinely wide-ranging causation means effective management demands addressing the specific underlying contributing factor for each individual patient.

Nutritional screening, using a structured, validated screening tool at every clinical contact where genuinely feasible, allows early identification of malnutrition risk before significant weight loss or functional decline has occurred, and this proactive, structured screening approach, rather than waiting for malnutrition to become visually or functionally obvious, reflects the same

genuinely proactive philosophy already emphasised for falls, delirium, and surgical risk assessment throughout this Series.

Fill in the blank: Nutritional screening allows early identification of malnutrition risk before significant weight loss or functional _____ has occurred.

5.4.2 assessing mental capacity and competence in the elderly

A genuinely essential, decision-specific legal and clinical framework

Mental capacity, the ability to understand, retain, weigh, and communicate a decision, is genuinely assessed on a **decision-specific** basis, meaning a patient can genuinely lack capacity for one specific decision while retaining capacity for another, a genuinely important principle preventing the inappropriate, blanket assumption that a diagnosis such as dementia automatically removes a patient's decision-making capacity across every area of their life.

Where a patient genuinely lacks capacity for a specific decision, decisions should genuinely be made in the patient's **best interests**, drawing on any previously expressed wishes, values, and beliefs the patient held while they retained capacity, alongside input from family and the wider clinical team, and this structured, principled approach to capacity assessment forms a genuinely essential legal and ethical foundation for comprehensive, respectful care of the older patient.

Fill in the blank: Mental capacity is genuinely assessed on a decision-specific basis, meaning a patient can lack capacity for one decision while retaining it for _____.

5.4.3 forensic and safeguarding issues in the elderly

Recognising and responding to genuine abuse and exploitation

Elder abuse, encompassing physical, psychological, financial, and sexual abuse, and neglect, whether from a family member, carer, or institutional setting, is a genuinely under-recognised concern requiring active, deliberate clinical vigilance, and specific vulnerability factors, including cognitive impairment, physical frailty, and social isolation already discussed throughout this Series, meaningfully increase an individual older person's genuine risk of experiencing abuse.

Safeguarding processes, structured pathways for reporting and responding to suspected abuse or neglect, require genuine familiarity from every clinician working with older patients, and, closing this Series and the entire course, this final topic underlines the same theme that has run consistently throughout, that comprehensive, structured, individualised care of the older person

genuinely extends well beyond purely medical considerations to encompass the person's genuine dignity, safety, and autonomy in every dimension of their care.

Fill in the blank: Elder abuse encompasses physical, psychological, financial, and sexual abuse, and _____.

Figure 5.2: A clinician conducting a sensitive conversation to assess an older patient's mental capacity.

Pilot questions 5.4

1. List factors contributing to malnutrition in older people. (Linked to SLO 5.7)
2. Describe the value of structured nutritional screening. (Linked to SLO 5.7)
3. Describe mental capacity and its decision-specific nature. (Linked to SLO 5.8)
4. Describe best interests decision-making when a patient lacks capacity. (Linked to SLO 5.8)
5. Describe elder abuse and the vulnerability factors that increase risk. (Linked to SLO 5.8)

Series Summary

This final Series covered the specific medical, surgical, and psychiatric disorders of old age, alongside nutrition, competence, and forensic considerations. Part 5.1 covered falls, frailty, delirium, and polypharmacy, while Part 5.2 turned to the perioperative assessment, common surgical conditions, and postoperative complications of the older surgical patient. Part 5.3 covered dementia, depression, and distinguishing delirium, dementia, and depression, and Part 5.4 closed with nutrition, mental capacity, and forensic and safeguarding issues in the elderly.

You should now be able to describe and manage the medical, surgical, and psychiatric disorders of old age, and address nutrition, capacity, and safeguarding considerations, across all four Parts of this Series, meeting the outcomes set for this Series. Across the full course, Series 1 covered the seronegative and seropositive arthritides, Series 2 covered rheumatoid arthritis, Sjögren's syndrome, ankylosing spondylitis, and enteropathic arthropathy, Series 3 covered osteoarthritis and the connective tissue disorders, Series 4 covered giant cell arteritis, rehabilitation, and physiological and psychosocial changes in old age, and this Series has closed the course with medical, surgical, and psychiatric disorders, nutrition, and competence issues in the elderly, together forming a comprehensive foundation in Rheumatology and Care of the Elderly.

Glossary of Terms

1. **Best interests decision-making:** decisions made on behalf of a patient who genuinely lacks capacity.
2. **Delirium:** an acute, fluctuating disturbance of consciousness and cognition.
3. **Dementia:** a chronic, progressive decline in cognitive function.
4. **Deprescribing:** the deliberate discontinuation of medication no longer providing genuine net benefit.
5. **Elder abuse:** physical, psychological, financial, or sexual abuse, or neglect, of an older person.
6. **Frailty:** reduced physiological reserve and increased vulnerability to adverse outcomes.
7. **Malnutrition:** inadequate nutritional intake, genuinely common in older people.
8. **Mental capacity:** the ability to understand, retain, weigh, and communicate a specific decision.
9. **Nutritional screening:** structured, validated assessment identifying malnutrition risk early.
10. **Polypharmacy:** the concurrent use of multiple medications by a single patient.
11. **Postoperative delirium:** delirium arising as a complication following surgery.
12. **Safeguarding:** structured processes for reporting and responding to suspected abuse or neglect.

Concept Check Questions [Series 5]

Objective questions

- Frailty is a genuinely distinct clinical syndrome of reduced physiological reserve and increased vulnerability to adverse outcomes following a relatively minor _____. (Linked to SLO 5.1)
- Prompt surgical management of hip fracture, alongside comprehensive perioperative geriatric input, genuinely, meaningfully improves _____. (Linked to SLO 5.3)
- Delirium is characteristically acute and fluctuating, while dementia is characteristically gradual and _____. (Linked to SLO 5.6)
- Mental capacity is genuinely assessed on a decision-specific basis, meaning a patient can lack capacity for one decision while retaining it for _____. (Linked to SLO 5.8)
- Elder abuse encompasses physical, psychological, financial, and sexual abuse, and _____. (Linked to SLO 5.8)

Short-answer questions

1. Distinguish hypoactive from hyperactive delirium. (Linked to SLO 5.1)
2. Describe medication review and deprescribing. (Linked to SLO 5.2)
3. Describe postoperative delirium and measures to reduce its incidence. (Linked to SLO 5.4)
4. Explain why depression in old age is frequently under-recognised. (Linked to SLO 5.5)
5. Describe best interests decision-making when a patient lacks capacity. (Linked to SLO 5.8)

Long-answer questions

6. Discuss falls, frailty, delirium, and polypharmacy in the elderly. (Linked to SLO 5.1, 5.2)
7. Describe the perioperative assessment, common surgical conditions, and postoperative complications of the older surgical patient. (Linked to SLO 5.3, 5.4)
8. Discuss dementia and depression in old age and how they are distinguished from delirium. (Linked to SLO 5.5, 5.6)
9. Describe nutrition and malnutrition in the elderly. (Linked to SLO 5.7)
10. Discuss mental capacity, competence, and forensic and safeguarding issues in the elderly. (Linked to SLO 5.8)

Answers to Concept Check Questions [Series 5]

Objective questions

11. Stressor.
12. Outcomes.
13. Progressive.
14. Another.
15. Neglect.

Short-answer questions

16. Hypoactive delirium presents with reduced activity and withdrawal, while hyperactive delirium presents with agitation.
17. Medication review is periodic reassessment of ongoing indication and benefit; deprescribing discontinues medication no longer beneficial.
18. Postoperative delirium is reduced through adequate pain control, early mobilisation, and maintaining orientation and sleep patterns.
19. Older patients often present with somatic symptoms or fatigue rather than a classic mood-focused presentation.
20. Best interests decisions draw on previously expressed wishes, values, and beliefs, alongside family and clinical team input.

Long-answer questions

21. **Basic response:** Falls result from combined physiological, environmental, and medication factors; frailty is reduced physiological reserve; delirium is acute, fluctuating confusion with wide-ranging triggers; polypharmacy increases interaction and adverse reaction risk, addressed through structured medication review.

    Value-added response: A value-added response notes that hypoactive delirium is genuinely more easily overlooked than the more visibly agitated hyperactive form.

22. **Basic response:** Assessment extends beyond anaesthetic fitness to comprehensive geriatric assessment; common conditions include hip fracture and gallstone disease; postoperative complications include delirium and functional decline, addressed through proactive, structured care.

    Value-added response: A value-added response notes that surgical decision-making must weigh benefit against the patient's overall frailty and personal goals of care.

23. **Basic response:** Dementia is gradual, progressive cognitive decline; depression is often under-recognised, presenting with somatic symptoms; delirium is acute and fluctuating, distinguished by onset and course, though all three can genuinely coexist.

    Value-added response: A value-added response notes that active screening for suicidal ideation is genuinely essential in older patients with depression.

24. **Basic response:** Malnutrition results from wide-ranging factors including reduced appetite, dental problems, isolation, and cognitive impairment, identified early through structured nutritional screening.

    Value-added response: A value-added response notes that management must address the specific underlying contributing factor for each individual patient.

25. **Basic response:** Mental capacity is assessed on a decision-specific basis, with best interests decision-making where capacity is lacking; elder abuse and neglect require active vigilance and familiarity with safeguarding processes.

    Value-added response: A value-added response notes that comprehensive elderly care extends beyond medical considerations to genuine dignity, safety, and autonomy.

Answers to Pilot Questions [Series 5]

Part 5.1

1. Falls result from combined physiological, environmental, and medication factors, carrying genuine injury and independence risk.
2. Frailty is reduced physiological reserve and increased vulnerability to adverse outcomes following a minor stressor.
3. Triggers include infection, medication, pain, constipation, and unfamiliar hospital environments.
4. Hypoactive delirium presents with reduced activity and withdrawal, while hyperactive delirium presents with agitation.
5. Medication review reassesses ongoing indication and benefit; deprescribing discontinues medication no longer beneficial.

Part 5.2

6. Assessment incorporates comprehensive geriatric assessment, identifying frailty, cognitive impairment, and functional limitation.
7. Hip fracture most commonly results from a fall with reduced bone density, requiring prompt surgery and geriatric input.
8. Decision-making must weigh surgical benefit against overall frailty, comorbidity burden, and personal goals of care.
9. Postoperative delirium is reduced through pain control, early mobilisation, and maintaining orientation and sleep patterns.
10. Functional decline is meaningful loss of independence in daily activities compared with pre-admission baseline.

Part 5.3

11. Symptoms include agitation, wandering, and sleep disturbance, managed by addressing triggers before medication.
12. Older patients often present with somatic symptoms or fatigue rather than a classic mood-focused presentation.
13. Risk factors include bereavement, social isolation, and chronic physical illness.
14. Delirium is acute and fluctuating, while dementia is gradual and progressive.
15. These conditions can coexist, such as delirium superimposed on established dementia during acute illness.

Part 5.4

1. Factors include reduced appetite, dental problems, social isolation, chronic illness, and cognitive impairment.
2. Screening identifies malnutrition risk early, before significant weight loss or functional decline occurs.
3. Mental capacity is the ability to understand, retain, weigh, and communicate a decision, assessed per specific decision.
4. Best interests decisions draw on previously expressed wishes, values, and beliefs, alongside family and clinical input.
5. Elder abuse includes physical, psychological, financial, and sexual abuse and neglect, with cognitive impairment and isolation as risk factors.

References and Attributions [Series 5]

1. Fillit, H. M., Rockwood, K., & Young, J. B. (2016). Brocklehurst's Textbook of Geriatric Medicine and Gerontology (8th ed.). Elsevier.
2. British Geriatrics Society (2019). Comprehensive Geriatric Assessment Toolkit. British Geriatrics Society.
3. National Institute for Health and Care Excellence (2023). Delirium: Prevention, Diagnosis and Management (CG103). NICE.
4. Kumar, P., & Clark, M. (2020). Kumar and Clark's Clinical Medicine (10th ed.). Elsevier.

Figures, Plates, Tables, and Boxes

1. Figure 5.1: A clinician observing an older patient's gait and balance during a falls risk assessment. AI-generated using the prompt: "Create a realistic clinical illustration titled Falls Risk Assessment, showing a clinician observing an older patient walking a short distance across a clinic room, attentively watching their gait and balance. Clean clinical illustration style, no text."
2. Table 5.1: Comparing common surgical conditions and their key perioperative consideration in the elderly. AI-generated using the prompt: "Create a clean reference table titled Comparing Common Surgical Conditions and Their Key Perioperative Consideration in the Elderly, listing condition, typical cause in this population, and key perioperative consideration. Simple clinical reference table style with outside border."
3. Table 5.2: Comparing delirium, dementia, and depression. AI-generated using the prompt: "Create a clean reference table titled Comparing Delirium and Dementia, listing feature, delirium, and dementia. Simple clinical reference table style with outside border."
4. Figure 5.2: A clinician conducting a sensitive conversation to assess an older patient's mental capacity. AI-generated using the prompt: "Create a realistic clinical illustration titled Assessing Mental Capacity, showing a clinician seated at eye level with an older patient in a private consultation room, engaged in a calm, attentive conversation. Clean clinical illustration style, no text."