

Psoriatic Arthritis: Disease State



Module 1:

Overview of Psoriatic Arthritis (PsA)

Objectives



- To understand the most important clinical features of PsA
- To understand the heterogeneity of the disease
- To understand how psoriatic arthritis is diagnosed

PsA=Psoriatic Arthritis.

What is Psoriatic Arthritis?

- Psoriatic arthritis (PsA) is a chronic autoimmune inflammatory disease of the joints and tendons often associated with psoriasis^{1,2}
- It mainly affects the peripheral joints, but may also affect the spine, and/or sacroiliac joints²
- Part of the family of the spondyloarthropathies includes^{3,4}:
 - Ankylosing spondylitis (radiographic and nonradiographic)
 - Reactive arthritis
 - Inflammatory bowel disease-related arthritis
 - Undifferentiated spondylitis

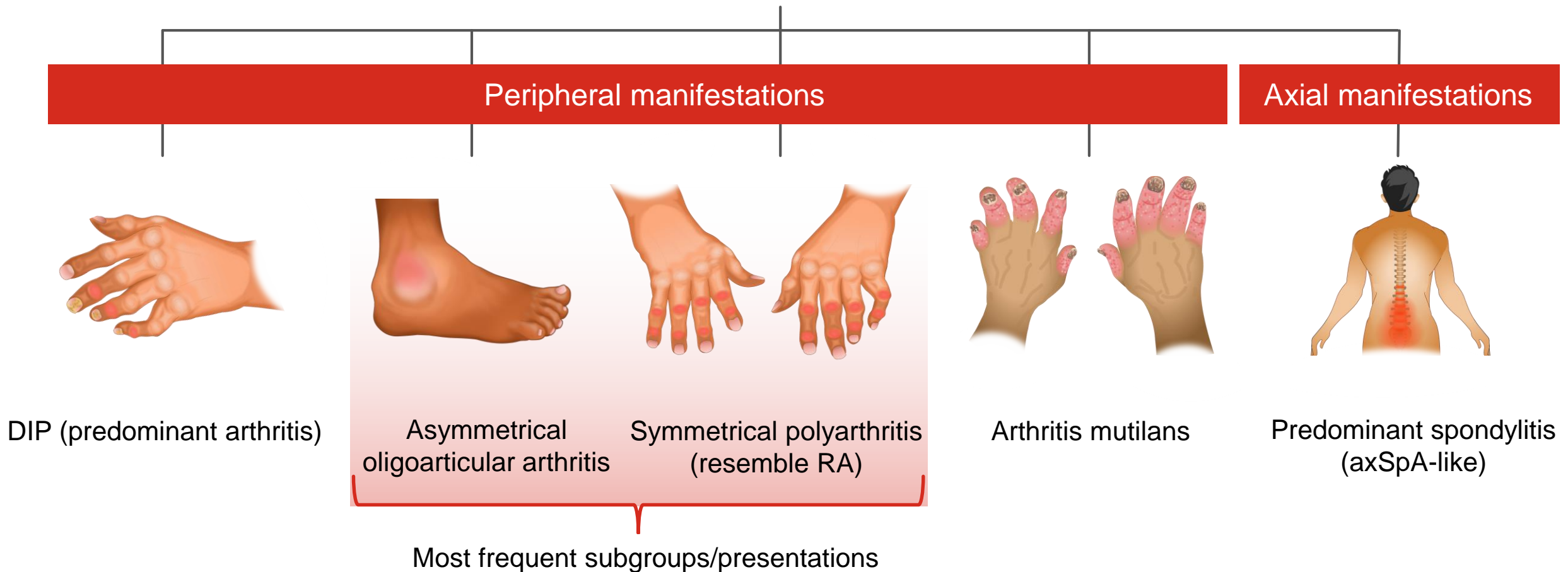
DIP=Distal Interphalangeal; PIP=Peripheral Interphalangeal; PsA=Psoriatic Arthritis.

1. www.rheumatology.org/l-Am-A/Patient-Caregiver/Diseases-Conditions/Psoriatic-arthritis (Accessed July 11, 2022). 2. Umezawa Y. *J Dermatol.* 2021;48(6):741-749.

3. Kishimoto M, et al. *Best Pract Res Clin Rheumatol.* 2021;35(2):101670. 4. Brent LH. <https://emedicine.medscape.com/article/332945-overview> (Accessed July 11, 2022).

Traditional Subtypes of PsA

Five subtypes of PsA according to Moll and Wright^{1,2}

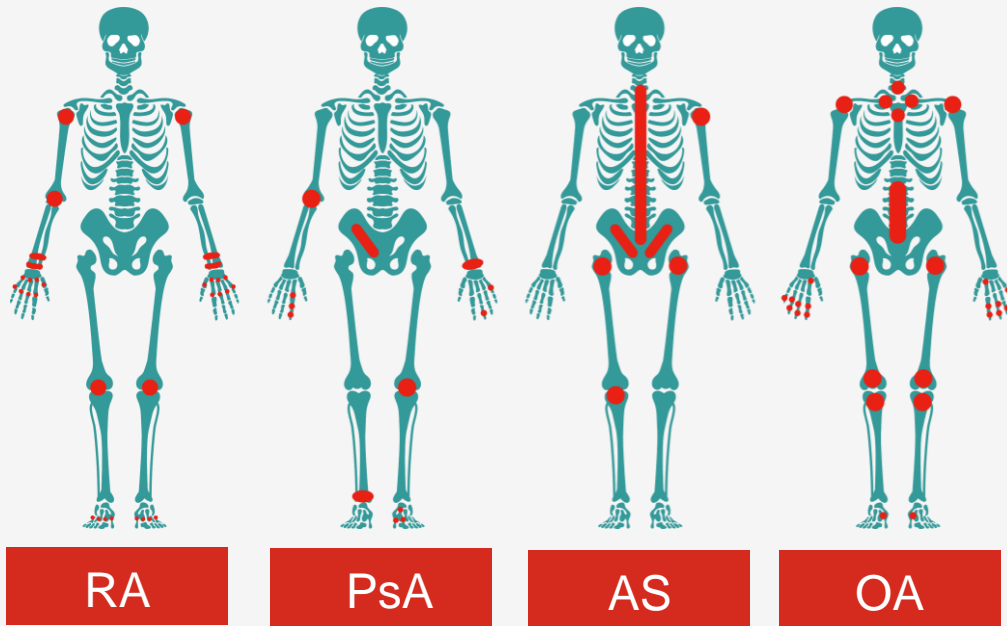


axSpA=Axial Spondyloarthritis; DIP=Distal Interphalangeal; PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis.

1. Acosta Felquer ML, FitzGerald O. *Clin Exp Rheumatol*. 2015;33(5 Suppl. 93):S26-S30. 2. Kishimoto M, et al. *Best Pract Res Clin Rheumatol*. 2021;35(2):101670.

Joint Involvement in PsA

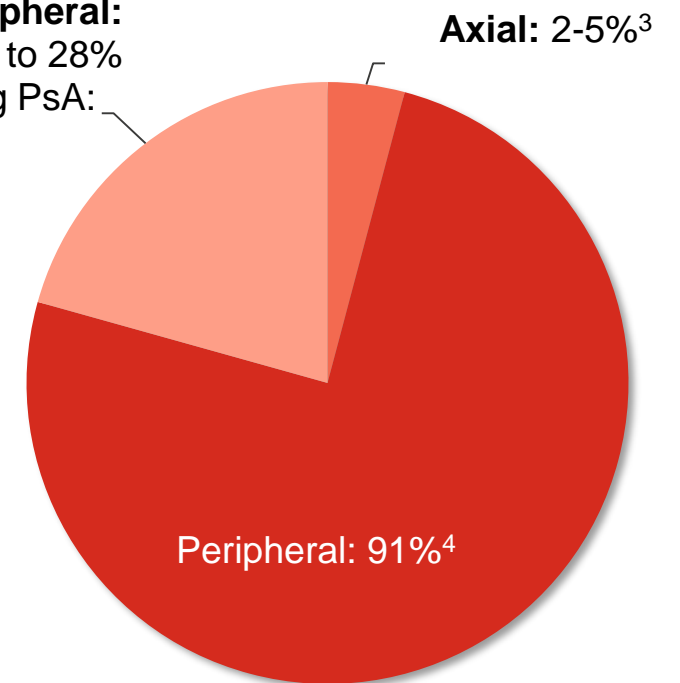
Joints affected in different forms of arthritis¹



For patients who develop joint damage,
it may be disabling¹

Distribution of joint involvement in PsA

Axial and peripheral:
In early PsA: 5 to 28%
In longstanding PsA: 25 to 70%²



AS=Ankylosing Spondylitis; OA=Osteoarthritis; PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis.

1. Belasco J, Wei N. *Rheumatol Ther.* 2019 Sep;6(3):305-315. 2. Floris A, et al. *Front Genet.* 2021;12:689984. 3. Poddubnyy D, et al. *Semin Arthritis Rheum.* 2021;51(4):880-887. 4. López-Medina C, et al. *RMD Open.* 2021;7(1):e001450.

Symptoms in the Peripheral Joints

- Structural joint damage from PsA can be assessed on conventional radiographs, whereas other symptoms (enthesitis, dactylitis, onycholysis) cannot¹
- The radiographic features of PsA can be grouped into^{1,2}:
 - Destructive changes:
 - Erosions, “pencil in cup”
 - Osteolysis
 - Proliferative changes:
 - Bone production
 - Joint fusion (ankylosis)

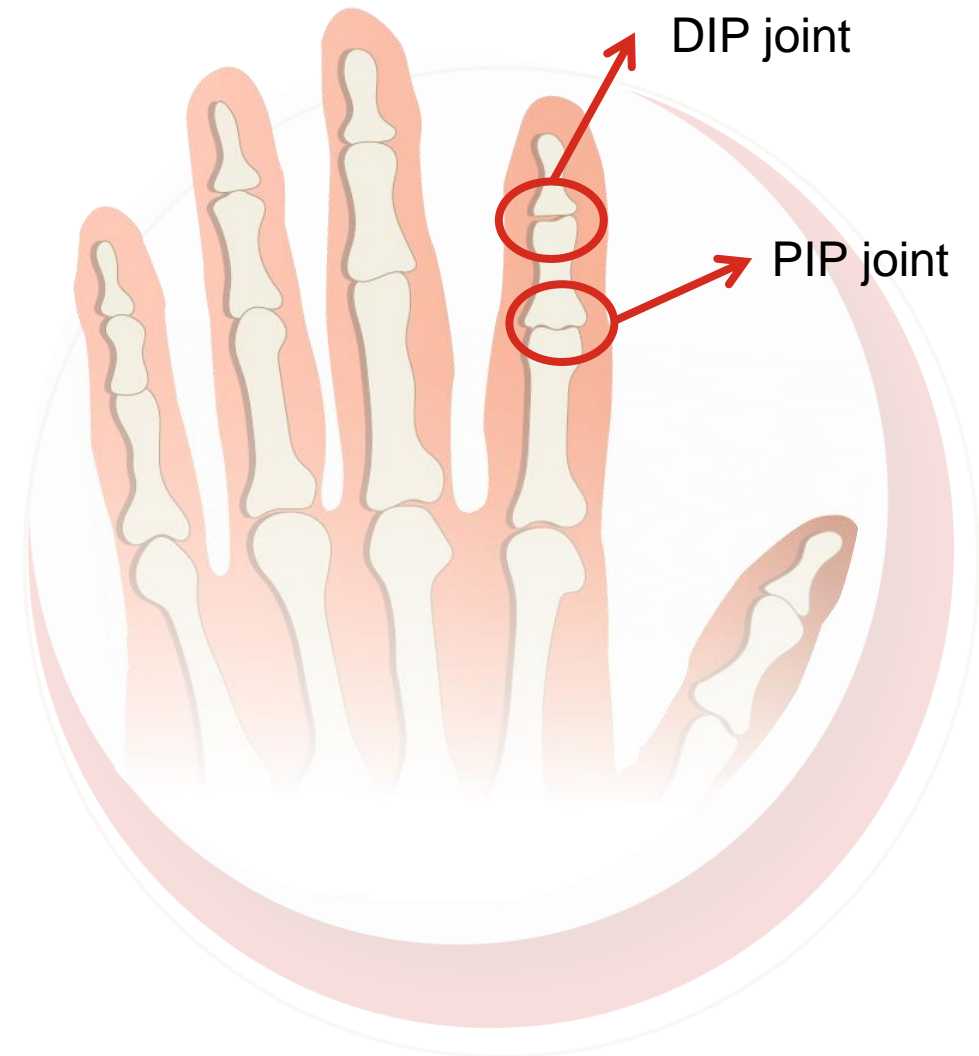


PsA=Psoriatic Arthritis

1. van der Heijde D, et al. *Arthritis Res Ther.* 2020;22(1):18. 2. Crespo-Rodríguez AM, et al. *Insights Imaging.* 2021;12(1):121.

Background: Structural Changes in PsA

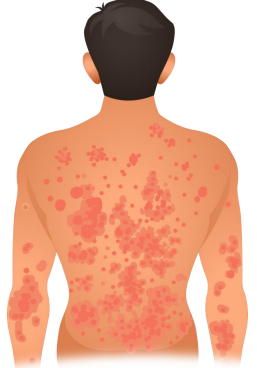



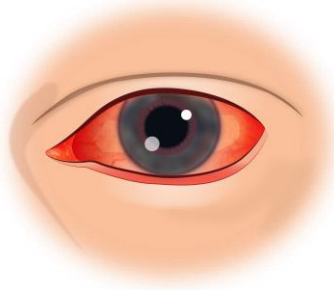
- Inflammation drives structural damage in AS, PsA, OA, and RA, but pathogenic pathways and patterns of damage differ¹
- In each of these conditions, patients can suffer from significant joint damage and subsequent disability over time¹
- Structural changes in PsA are characterized by an asymmetrical presentation and usually involve joints such as the PIP joints¹
- In contrast to rheumatoid arthritis, PsA can also involve the DIP joints¹
- Osteoproliferative changes are often found; these are considered indicative of PsA^{1,2}



AS=Ankylosing Spondylitis; DIP=Distal Interphalangeal; OA=Osteoarthritis; PIP=Proximal Interphalangeal; PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis.

1. Senthelal S, et al. In: StatPearls [Internet]; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK518992/> (Accessed July 11, 2022). 2. Hermann S, et al. *Diagnostics*. 2022;12(3):618.

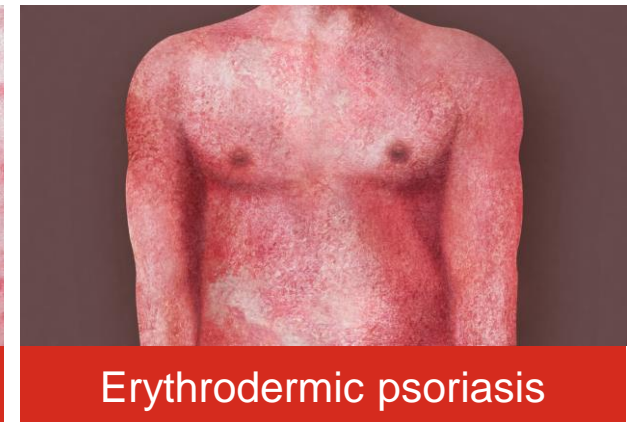
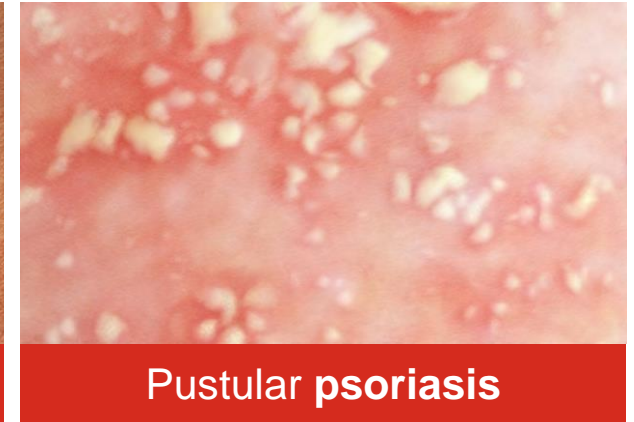
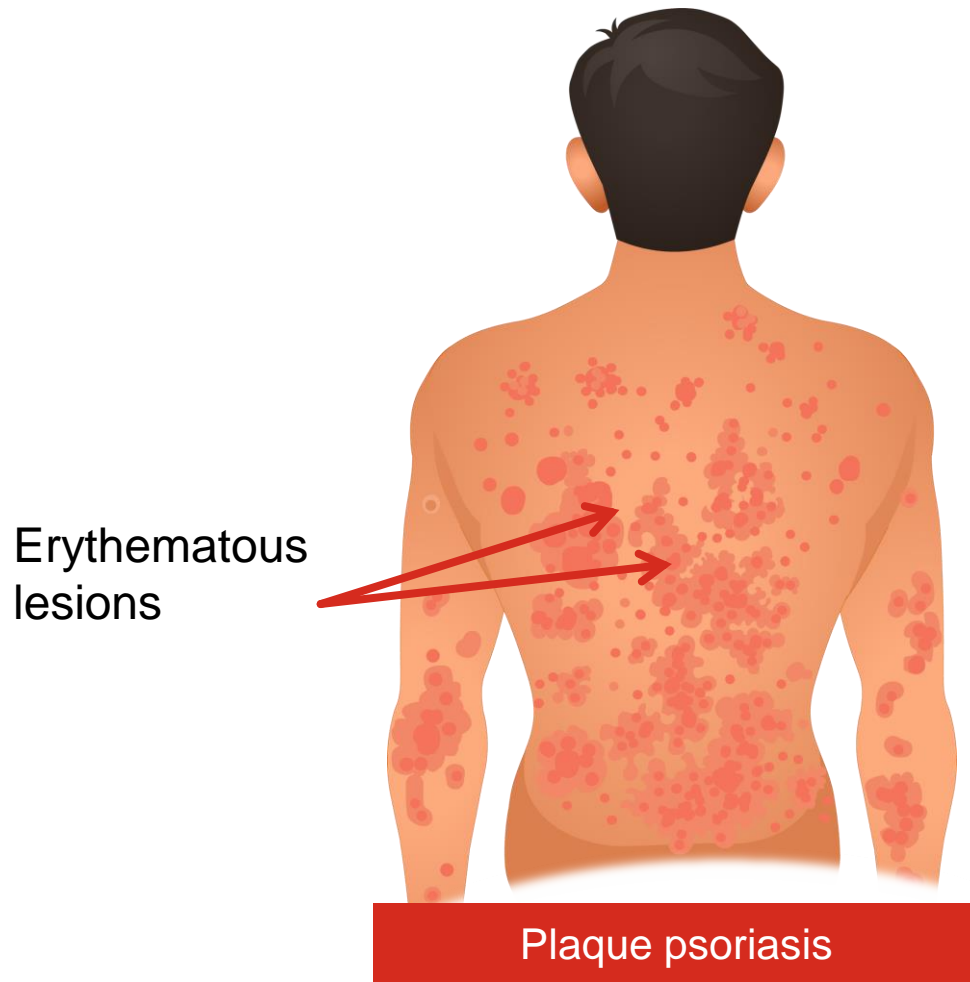
Skin and Other Non-joint Involvement in PsA

Extra-articular Manifestations ^{1,2} :					
	<p>Psoriasis</p>	<p>Enthesitis</p>	<p>Dactylitis</p>	<p>Nail changes</p>	<p>Uveitis</p>
	<p>With or without obvious psoriatic skin lesions¹</p>	<p>Swelling where tendon connects to joint³</p>	<p>Swelling of an entire digit⁵</p>	<p>Nail plate crumbling, onycholysis and nail pitting⁶</p>	<p>Conjunctival inflammation, eye redness, and eye pain⁷</p>
Prevalence:	<p>BSA = 0: 31.4%¹ BSA >0 to ≤3: 26.3% BSA >3 to <10: 20.2% BSA ≥10: 22.1%</p>	<p>Range: 6.3 to 72%⁴ Pooled estimate: 30%</p>	<p>Range: 1.5 to 59%⁴ Pooled estimate: 25%</p>	<p>Range: 26 to 92%⁴ Pooled estimate: 60%</p>	<p>Range: 0.2 to 17%⁴ Pooled estimate: 3.2%</p>

BSA=Body Surface Area; PsA=Psoriatic Arthritis

1. Tillett W, et al. *Rheumatol Ther*. 2020;7(3):617-637. 2. Tiwari V, Brent LH. Psoriatic Arthritis. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK547710/> (Accessed July 22, 2022). 3. Schett G, et al. *Nat Rev Rheumatol*. 2017;13:731-741. 4. Pittam B, et al. *Rheumatology (Oxford)*. 2020;59(9):2199-2206. 5. Kaeley GS, et al. *Semin Arthritis Rheum*. 2018;48(2):263-273. 6. Sandre MK, et al. *Semin Arthritis Rheum*. 2014;44(2):162-169. 7. Fotiadou C, et al. *Psoriasis (Auckl)*. 2019;9:91-96.

Skin Involvement in PsA



PsA=Psoriatic Arthritis

Nair PA, Badri T. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK448194/> (Accessed July 11, 2022).

Enthesitis in PsA

- Enthesitis is an inflammation of the tendon insertion sites into the bone and is an early manifestation of PsA
- Enthesitis encompasses both inflammatory and structural changes
- Can be detected by ultrasonography and MRI
 - Thickened tendon and increased tissue blood flow (ultrasonography)

Enthesitis in the left Achilles tendon



Did You Know...?

Enthesis is a Greek word for the insertion of tendons, ligaments, and joint capsule fibers into bone

Dactylitis in PsA



- MRI studies suggest that dactylitis is an inflammation of the flexor tendons
- Joint involvement is seen on ultrasonography and X-rays in about 50% of patients
- Dactylitis can be acute (tender) or chronic (swollen, non-tender)

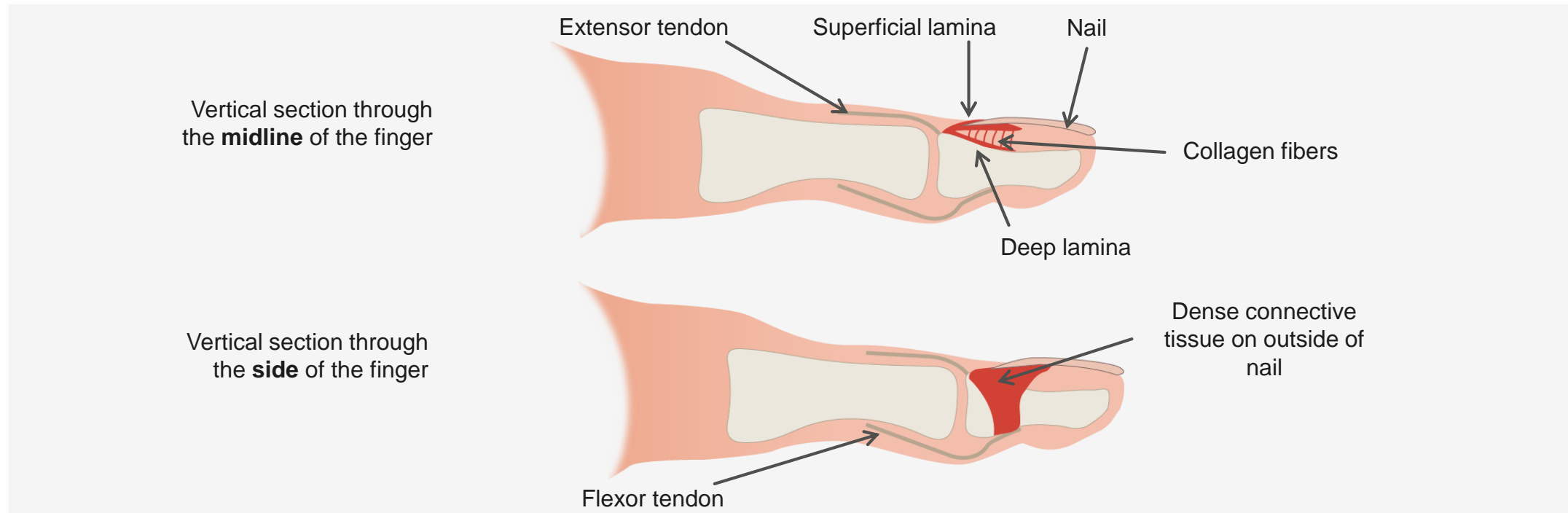
MRI=Magnetic Resonance Imaging; PsA=Psoriatic Arthritis.
Kaeley GS, et al. *Semin Arthritis Rheum.* 2018;48(2):263-273.



The Leeds Dactylitis Instrument

Nail-Joint Connection

- Psoriasis patients with nail changes are more likely to show signs of enthesitis on ultrasonography than those without¹
- Nail disease may be the link between the skin disease of psoriasis and joint inflammation in PsA^{1,2}



PsA=Psoriatic Arthritis.

1. Cunha JS, et al. *J Rheumatol.* 2017;44(5):688-690. 2. Perrin C. *Am J Dermatopathol.* 2020;42(12):911-915.

Types of Nail Changes

Nail matrix disease:



Pitting



Leukonychia



Nail plate crumbling



Red spots on the lunula

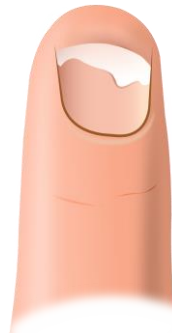


Onychorrhexis

Nail bed disease:



Oil spot changes



Onycholysis



Subungual hyperkeratosis



Splinter hemorrhages

Uveitis in PsA

- Inflammation of the uvea: The iris, ciliary body, and choroid^{1,2}
- May be anterior, posterior, or intermediate (or pan)^{1,2}
- Uveitis seen with PsA is usually^{1,2}:
 - Insidious onset³
 - Anterior and intermediate
 - Bilateral
- Uveitis is frequently an early indicator of PsA in psoriasis patients²



Diagnosis can be made with a thorough eye examination²

PsA=Psoriatic Arthritis.

1. Fotiadou C, et al. *Psoriasis (Auckl)*. 2019;9:91-96. 2. Duplechain A, et al. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK540993/> (Accessed July 22, 2022).

3. Merola JF, et al. *RMD Open*. 2018;4(2):e000656.

Disease Course

- PsA leads to¹⁻³:
 - Joint deformity
 - Bone erosion
 - Decreased functionality
- PsA is associated with an increased risk of mortality⁴
- Arthritis in PsA is progressive, with few patients showing signs of remission¹

PsA=Psoriatic Arthritis.

1. Paine A, et al. *Calcif Tissue Int.* 2018;102(5):559-574. 2. Merola JF, et al. *RMD Open.* 2018;4(2):e000656. 3. Tiwari V, Brent LH. Psoriatic Arthritis. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. <https://www.ncbi.nlm.nih.gov/books/NBK547710/> (Accessed July 22, 2022). 4. Leung YY. *J Rheumatol.* 2022;49(2):128-131.