

Diagnosis & Assessment of Psoriatic Arthritis

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Agenda

Psoriatic arthritis

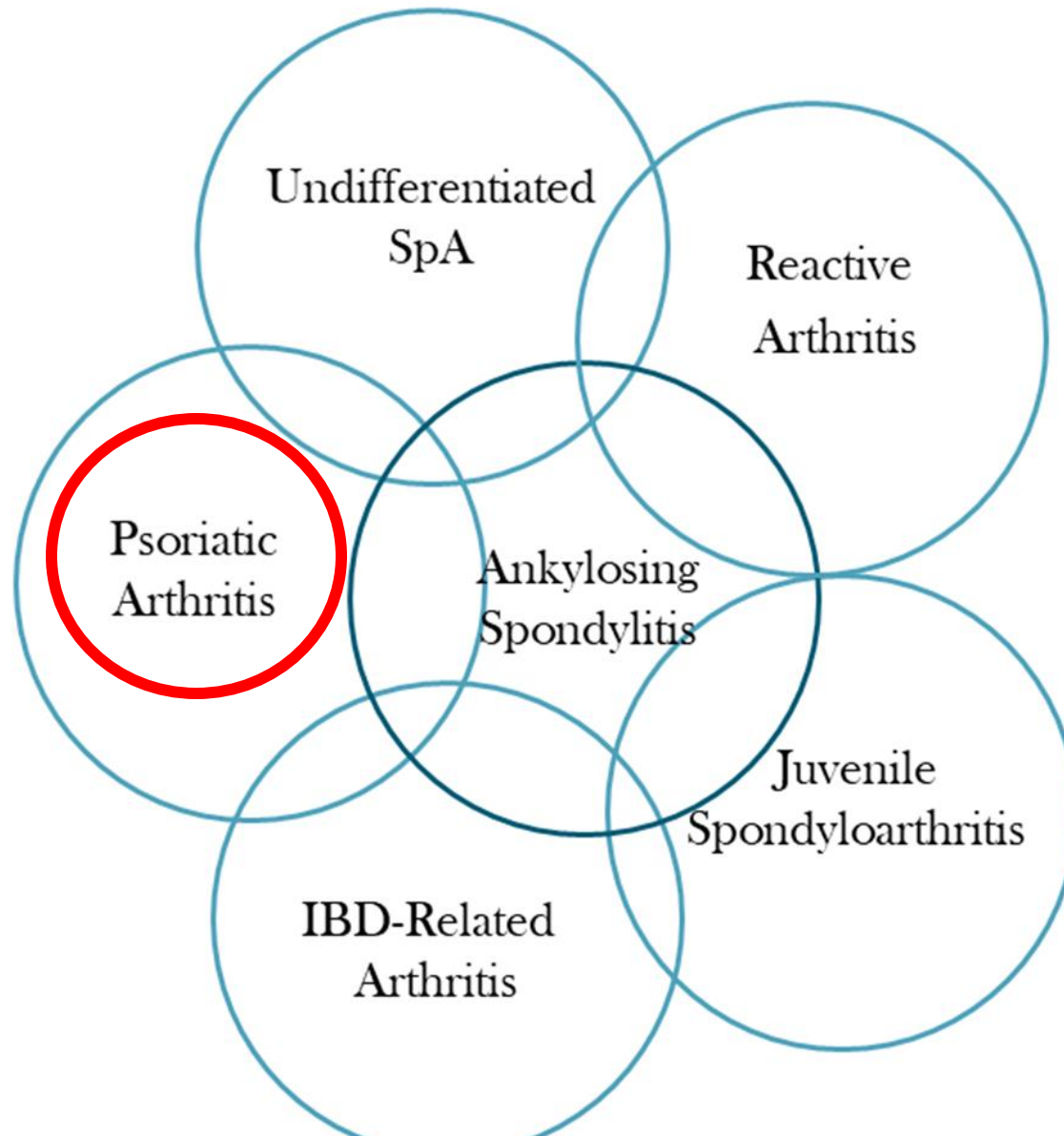
- Introduction
- Epidemiology
- Diagnosis
- Assessment of disease activity & structural damage
- Conclusion



Psoriatic arthritis (PsA)

- In 1964, Moll and Wright defined it as an inflammatory arthritis plus the presence of psoriasis, in the absence of a rheumatoid factor.
- A multifaceted disease, with a high impact on patient's psychological & physical health.
- It shares many clinical features with other spondyloarthropathies.

Spondyloarthritis



Epidemiology of PsA

- A 2019 meta-analysis described an overall pooled prevalence of PsA of 20 -30% in psoriatic patients.
- Estimates of the global prevalence of PsA range widely from 0.05 to 0.25% of the general population.
- Affects middle age (30-50 years) subjects, males and females are equally affected.

Rheum Dis Clin North Am (2015)



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Epidemiology of PsA

- Symmetrical polyarthrititis & juvenile forms are more common in females.
- Axial involvement has historically been thought to be more common in men than women.
- The presence of HLA-B27 gene variants is associated with more severe PsA & found more frequently in patients with axial involvement .
- Genes identified by GWAS that are considered prominent in psoriasis include HLA-Cw6, IL12B, IL23R, IL23A, TYK2, and ERAP1.

Clin Rheumatol, (2018)



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Psoriatic arthritis (PsA)

- Psoriasis appears to precede the onset of psoriatic arthritis in 60-80% of patients .
- In 15-20% of cases, arthritis appears before psoriasis.
- Occasionally, arthritis and psoriasis appear simultaneously.

J Am Acad Dermatol., 2021

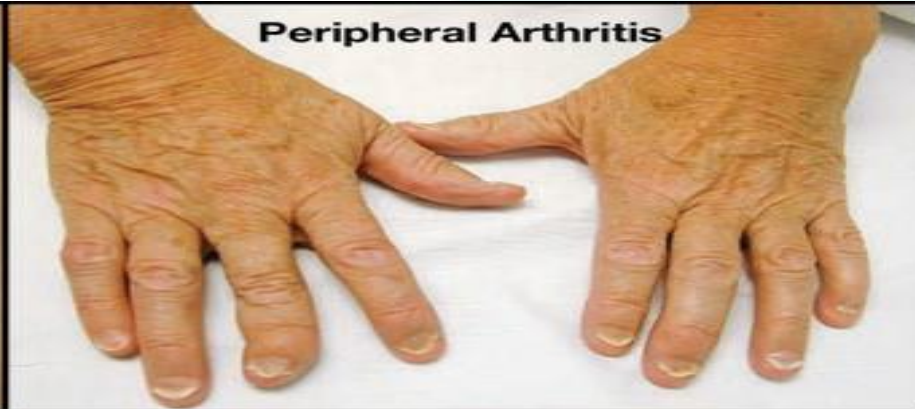
PsA Subtypes

1. Asymmetric oligoarthritis.
2. Symmetric polyarthritis.
3. Distal interphalangeal (DIP) predominant arthritis.
4. Arthritis mutilans.
5. Psoriatic spondylitis, arthritis of the sacroiliac joints & spine.

Dactylitis



Peripheral Arthritis



Enthesitis



Nail Involvement



Axial Involvement



Skin Involvement



Comorbidities

- Ocular: uveitis, conjunctivitis, keratitis.
- Gastrointestinal: inflammatory bowel disease
- Non-alcoholic fatty liver disease
- Obesity & metabolic syndrome
- Cardiovascular disease
- Osteoporosis
- Depression
- Fibromyalgia.

Rheum Dis Clin North Am. 2015



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Diagnosis



CASPAR Criteria

Table 1

CASPAR criteria for PsA¹⁷

To meet the CASPAR criteria for PsA, the patient should have inflammatory joint disease (peripheral, axial or enthesitis) and achieve three or more points, based on the following categories

1. Evidence of psoriasis

Current	2 points
Personal history	1 point
Familial history	1 point

2. Psoriatic nail dystrophy

Pitting, onycholysis, hyperkeratosis	1 point
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3. Negative test result for rheumatoid factor

1 point

4. Dactylitis

Current inflammation of an entire digit	1 point
History of dactylitis	1 point

5. Radiological evidence of juxta-articular new bone formation

Well-defined ossification close to joint margins on plain radiographs of hands and feet	1 point
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Sensitivity: 91%; specificity: 99%.



Poor Prognostic Factors In PsA

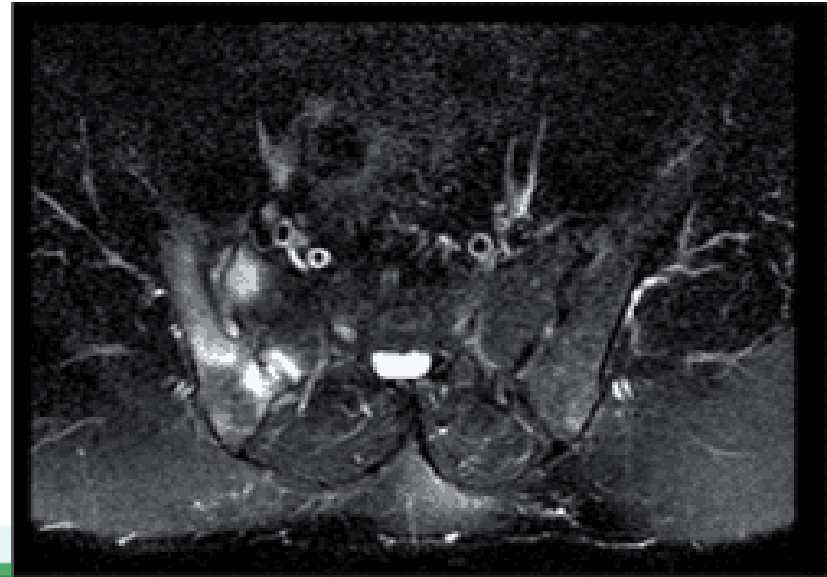
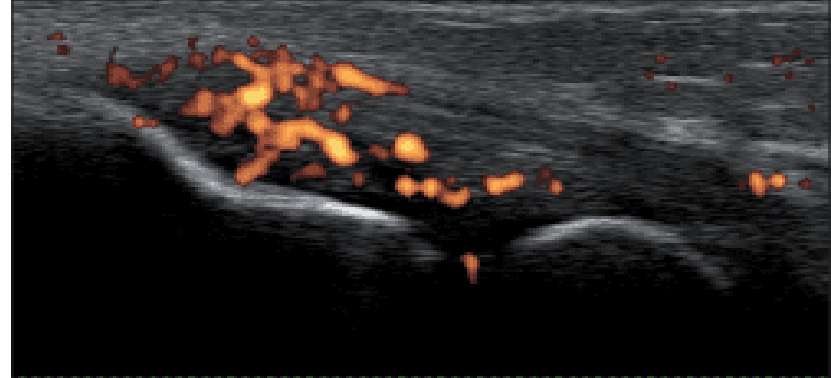
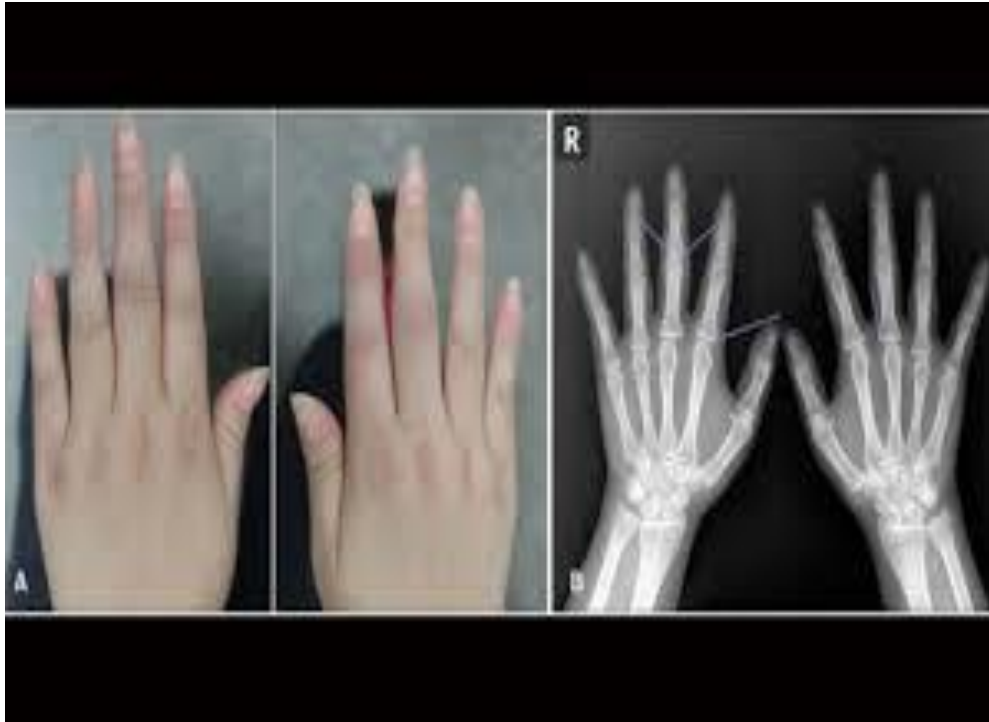
1. A strong family history of psoriasis
2. Disease onset younger than the age of 20 years
3. Expression of HLA-B27, HLA-Cw6, or HLA-DR4 alleles
4. Dactylitis & enthesitis
5. Polyarticular & erosive diseases
6. Extensive skin involvement

Dactylitis is associated with joint erosions & enthesitis is associated with radiographic damage in psoriatic arthritis.

Arthritis Care Res 2017



Imaging



Imaging

1. Plain X-Ray
2. Musculoskeletal ultrasonography
3. MRI
4. Novel modalities
 - HRpQ-CT
 - Can detect new bone formation in early stages.
 - DECT

Imaging (x-ray hands

PsA is characterized by the combination of erosive changes with new bone proliferation, in a predominantly distal distribution.



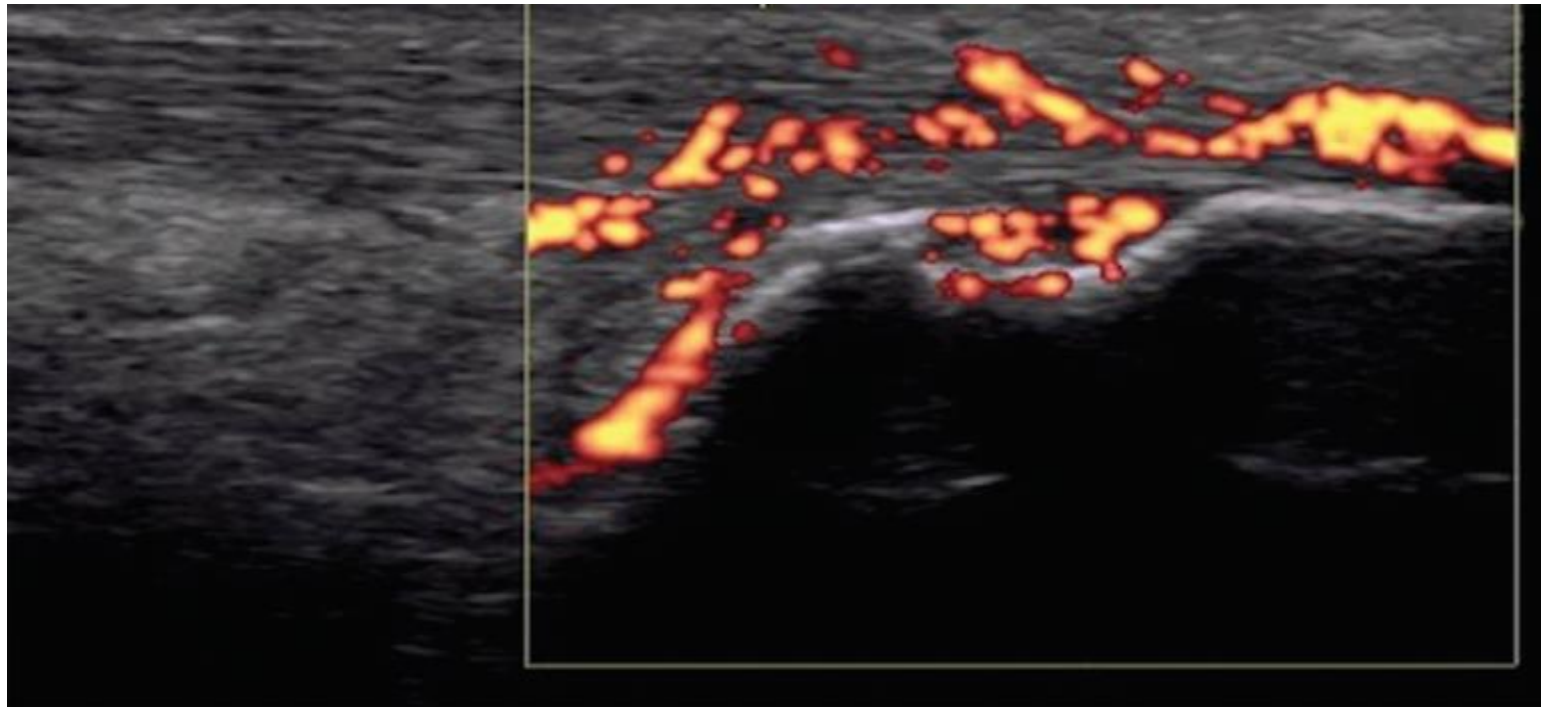


Development of a Preliminary Ultrasonographic Enthesitis Score in Psoriatic Arthritis – GRAPPA Ultrasound Working Group

Stephanie Tom^{1 2}, Yujie Zhong^{1 2}, Richard Cook^{1 2}, Sibel Zehra Aydin^{1 2}, Gurjit Kaeley^{1 2},
Lihi Eder^{3 4}

The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) is currently developing a *new enthesitis scoring* system for PsA that aims to distinguish PsA from other conditions .

Musculoskeletal ultrasonography



Achilles tendon enthesitis with Doppler; erosion of calcaneus.

Clinical and genetic associations of radiographic sacroiliitis and its different patterns in psoriatic arthritis

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Abstract

Objective

We aimed to 1) identify clinical and genetic associations of sacroiliitis (SI) in patients with psoriatic arthritis (PsA), and 2) describe the different radiographic patterns of SI in PsA and their clinical and genetic associations.

Methods

283 PsA patients, fulfilling CASPAR criteria, underwent detailed skin and rheumatologic assessments. In addition, HLA-B*27 and B*080101 status was recorded, which have been shown as the key genetic markers of radiographic SI in PsA. Grade 2 Unilateral or bilateral radiographic changes of SI were required for inclusion and involvement was further defined as asymmetrical or symmetrical.



Axial affection in PsA

Conclusion

- **25%** of the patients had radiological sacroiliitis (asymmetric 73%, in patients with history of back pain 100%).
- Sacroiliitis was significantly associated with peripheral joint erosion ($p = 0.043$), high psoriasis activity and severity scores (PASI) ($p = 0.041$) and early onset of PsA ($p \leq 0.001$)

Clin Exp Rheumatol (2017).

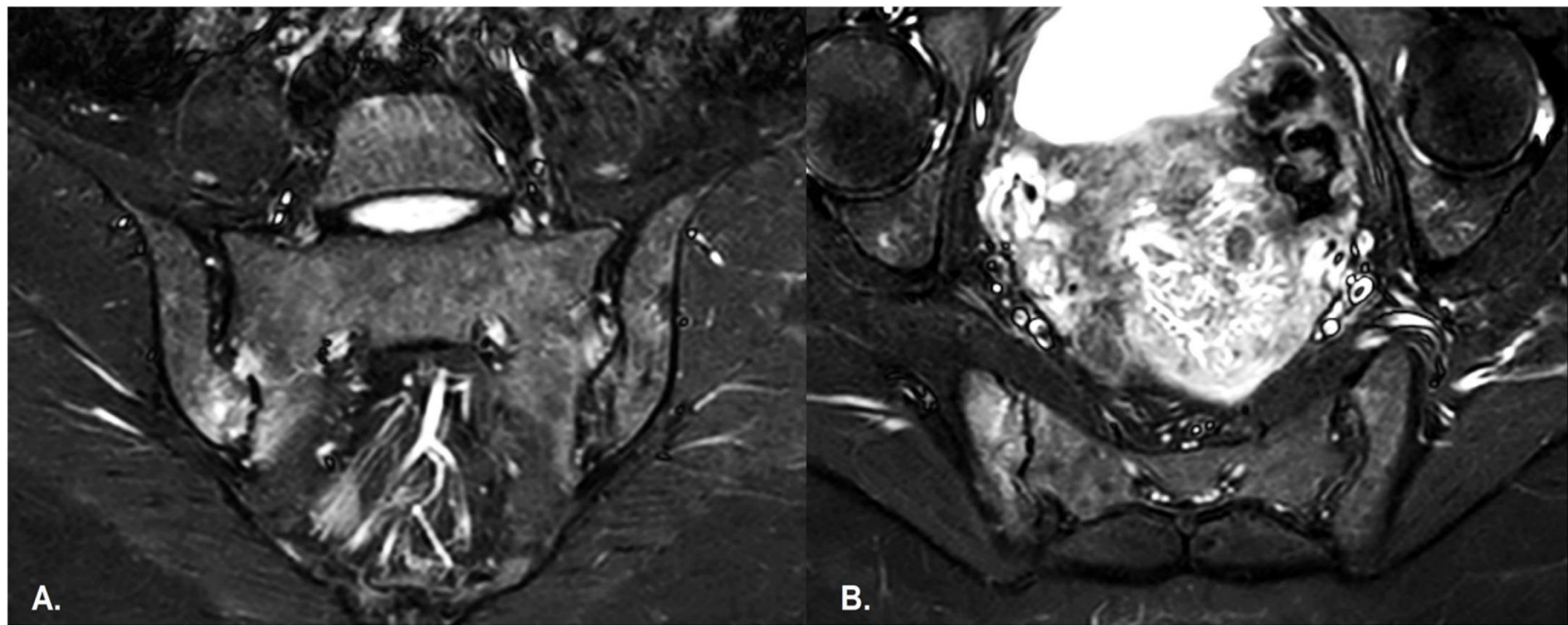
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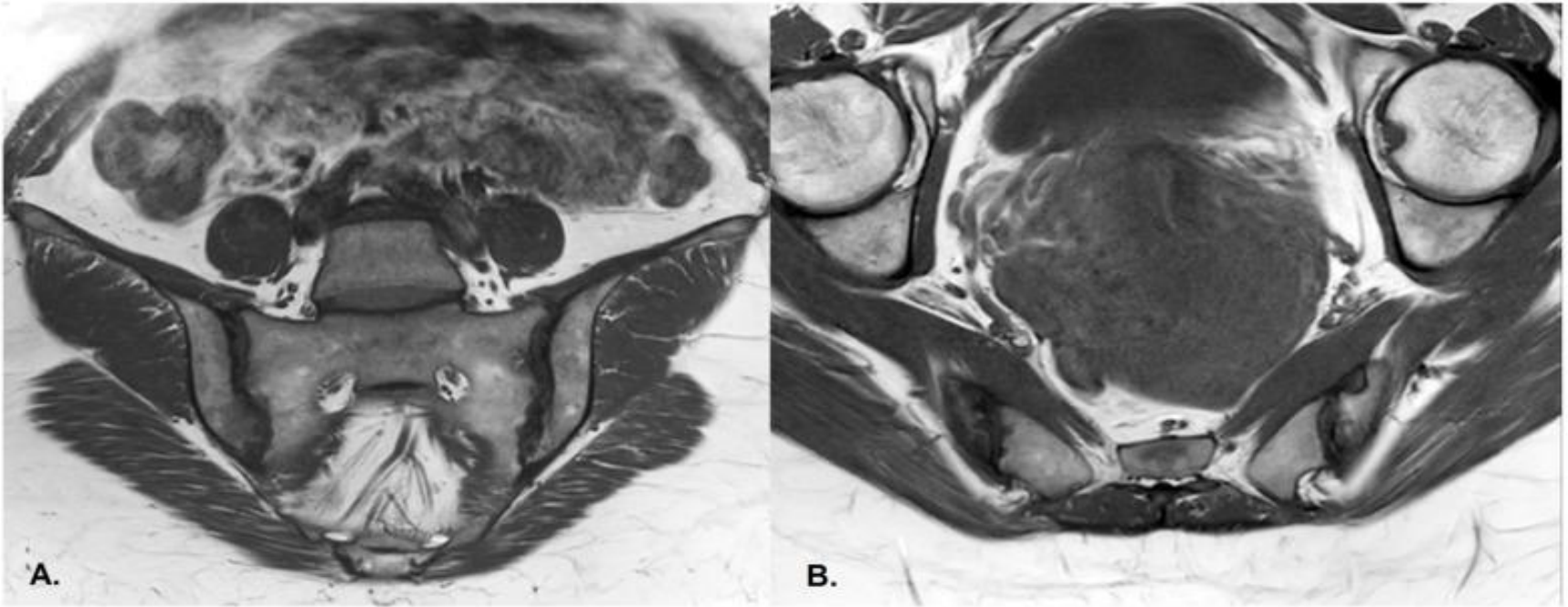
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MRI SI joints



A) Coronal and **(B)** axial STIR sequences show extensive subchondral oedema involving the sacroiliac joints, mainly on the right side, consistent with active sacroiliitis in a patient with psoriasis.

MRI SI joints



A) Coronal and **(B)** axial T1-weighted sequences of the sacroiliac joints demonstrate subchondral sclerosis and erosions, predominantly on the right side, in the same patient .

Structural Damage Assessment

In 2016, (GRAPPA) & (OMERACT) Core Domain Set for PsA, advocated that structural damage should be measured at least once in the evaluation of a drug in randomized controlled trials (RCTs) and longitudinal observational studies (LOS).

Semin Arthritis Rheum(2018)

Structural damage Assessment

- Radiographs have been the standard approach for assessment of structural damage in clinical trials of PsA over the last 20 years .
- Assesses peripheral joint damage (e.g., bone erosions, osteolysis, subluxation, ankylosis), determine involvement of the sacroiliac joint and joints of the spine, and identify spurs at the entheses .

Clin Exp Rheumatol. 2015

Scoring methods

Several semi-quantitative scoring systems have been developed for the assessment of structural damage progression in PsA.

They are used for trials of biologic or targeted synthetic DMARDs.

1. Sharp scoring method for PsA
2. Sharp-van der Heijde scoring method for PsA
3. Psoriatic Arthritis Ratingen score

Ann Rheum Dis. 2014

Radiographic Disease Progression Modified Total Sharp Score (mTSS)

What does it assess?

Degree of articular damage

What does it mean?

mTSS scores range from 0–528

Higher scores = more articular damage

How is it assessed?

- Erosions and joint space narrowing graded in:
 - 20 locations per hand
 - 6 locations per foot
- Erosions scored from 0–5 (hands) or 0–10 (feet); maximum score = 360
- Joint space narrowing scored from 0–4; maximum score = 168
- mTSS = sum of erosion and joint space narrowing scores

How is it reported?

Generally reported as the change in score from baseline

Assessment Tools for PsA

- In order to measure disease activity, progression & change with therapy in PsA, it is important to use accurate, reliable & feasible outcome measures that can ideally be employed in clinical practice, cohorts & clinical trials.
- The Tight Control Of Psoriatic Arthritis (TICOPA) trial confirmed the benefit of regular disease activity assessment using objective outcome measures.

Disease Monitoring



Disease Activity



Structural Damage

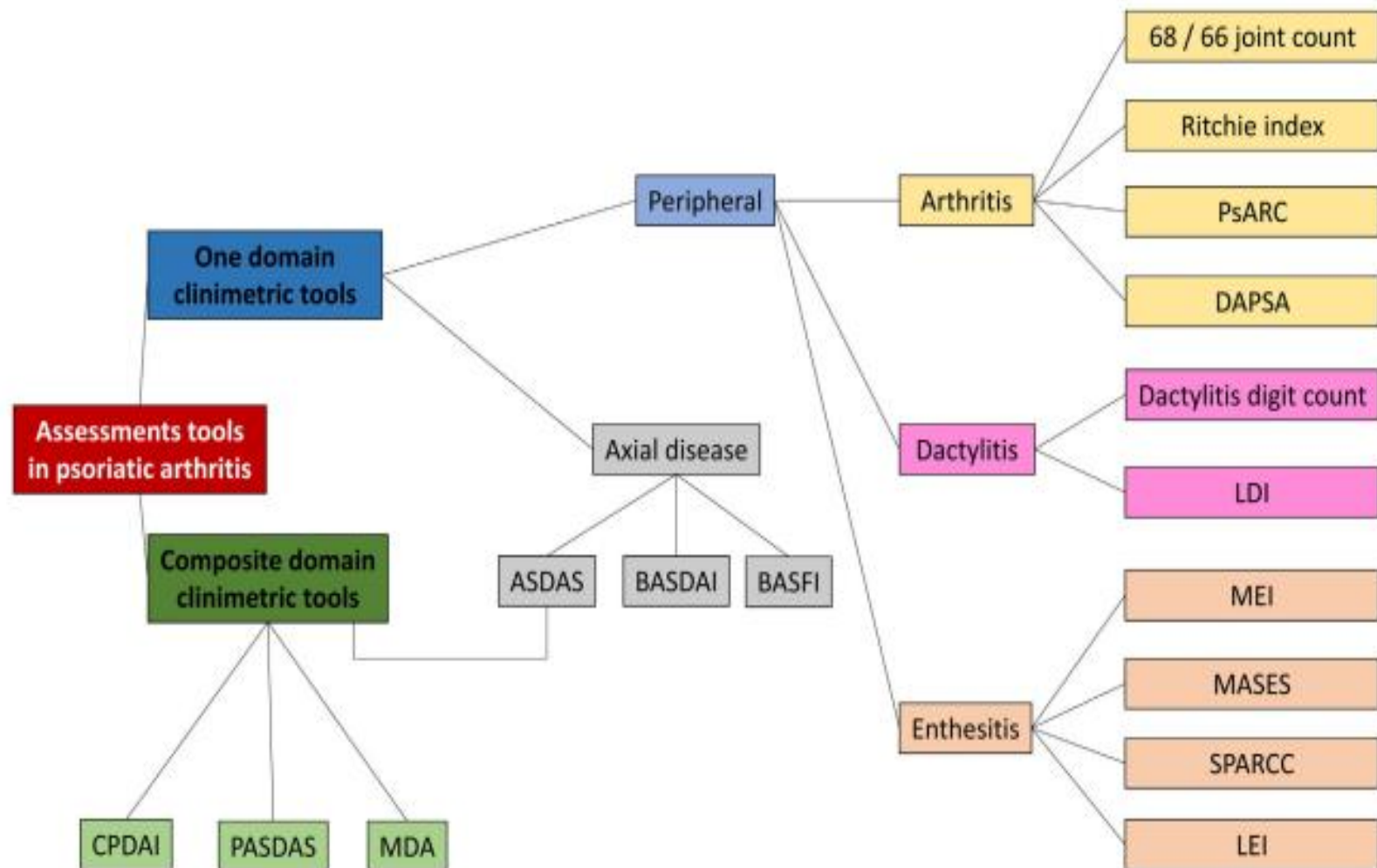


Fig. 1 – Clinimetric tools in psoriatic arthritis. PsARC: Psoriatic Arthritis Response Criteria. DAPSA: Disease Activity in Psoriatic Arthritis. LDI: Leeds Dactylitis Index. MEI: Mander/Newcastle Enthesitis Index. MASES: Maastricht Ankylosing Spondylitis Enthesitis Index. SPARCC: Spondyloarthritis Research Consortium of Canada. LEI: Leeds Enthesitis Index. ASDAS: Ankylosing Spondylitis Disease Activity Score. BASDAI: Bath Ankylosing Spondylitis Disease Activity Index. BASFI: Bath Ankylosing Spondylitis Functional Index. CPDAI: Composite Psoriatic Arthritis. PASDAS: Psoriatic Arthritis Disease Activity Score. MDA: Minimal Disease Activity.

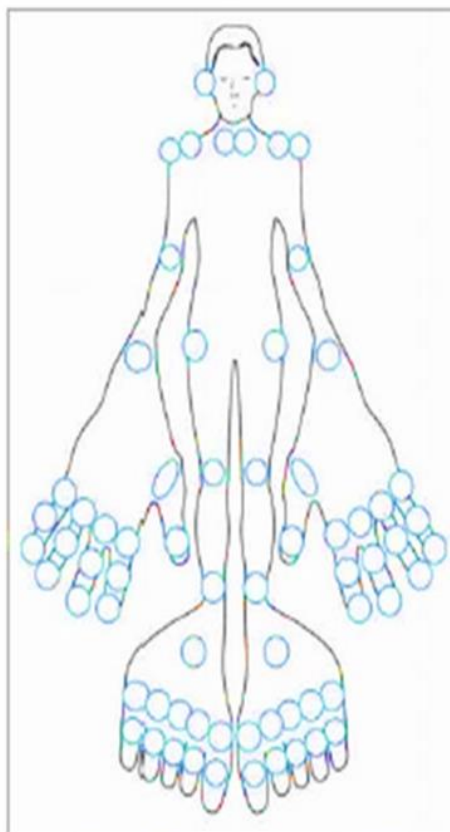
Disease activity scores

Composite domain clinimetric tools

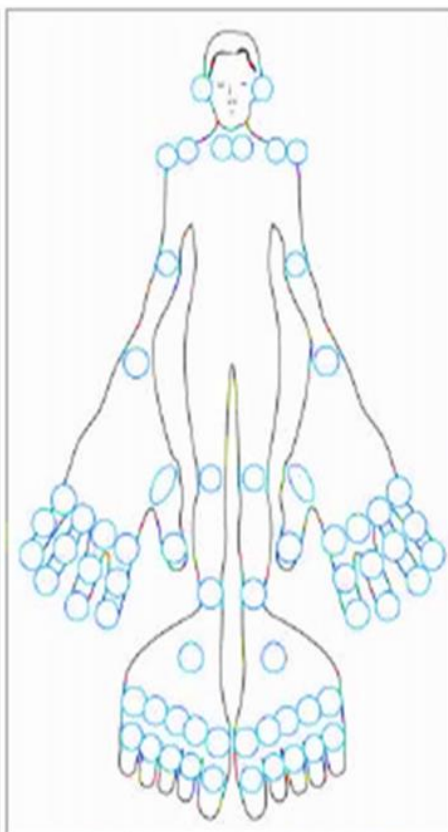
1. DAPSA (Disease Activity Index for Psoriatic Arthritis)
2. CPDAI (Composite Psoriatic Disease Activity Index)
3. PASDAS (PsA Disease Activity Score)

One domain clinimetric tools

1. Tender & swollen joint counts of 68 and 66 joints, respectively, in peripheral arthritis
2. Clinimetrics for dactylitis
3. Enthesitis assessment instruments



1. Tender Joints Count (0-68), TJ:



2. Swollen Joints Count (0-66), SJ:

3. CRP (mg/dl):

4. Patient's assessment of disease activity and pain

- How active was your rheumatic disease on average during the last week?

not active very active

- How would you describe the overall level of joint pain during the last week?

none very severe

DAPSA = TJ + SJ + CRP + Activity + Pain =

Disease Activity: 0-4 Remission, 5-14 low, 15-28 moderate, >28 high Disease Activity

DAPSA = TJ + SJ + CRP + Activity + Pain = Disease Activity:
0-4 Remission, 5-14 low, 15-28 moderate, >28 high Disease Activity

Results:

- Tender joint count ≤ 1 ✓
- Swollen joint count ≤ 1 ✓
- Psoriasis Activity and Severity Index ≤ 1 or body surface area $\leq 3\%$ ✓
- HAQ ≤ 0.5 ✓
- Patient pain VAS ≤ 15 ✗
- Patient global disease activity VAS ≤ 20 ✓
- Tender enthesal points ≤ 1 ✓

Score: 6 MDA Achieved

<5: MDA not achieved	6-7: MDA achieved	7: VLDA achieved
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Finish

DAPSA

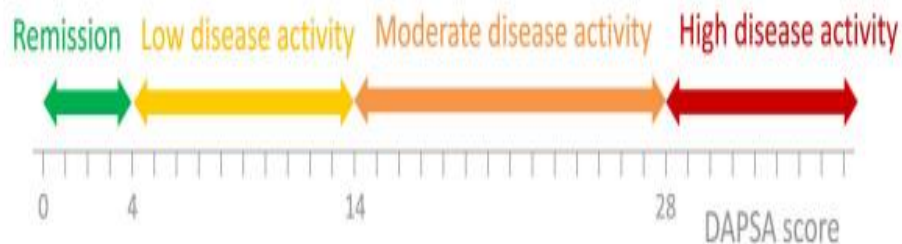


Figure 1 Screenshot from the GRAPPA app MDA calculator. GRAPPA, Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; HAQ, health assessment questionnaire; VAS, visual analogue scale.

Tomado de ReumApp® 2022

MDA

A patient is classified as in MDA when 5 of the following 7 criteria are met:

Tender joint count ≤ 1

Swollen joint count ≤ 1

PASI ≤ 1 or BSA ≤ 3

Patient pain VAS ≤ 15

Patient global activity VAS ≤ 20

HAQ ≤ 0.5

Tender enthesial points ≤ 1

- Calculated as the sum of the following 5 PsA domains:
 - Peripheral arthritis (TJC, SJC, HAQ-DI)
 - Skin disease (PASI, Dermatology Life Quality Index)
 - Enthesitis (LEI, HAQ-DI)
 - Dactylitis (dactylitis digit count, HAQ-DI)
 - Axial disease (Bath Ankylosing Spondylitis Disease Activity Index [BASDAI], Ankylosing Spondylitis Quality of Life)

Score of each domain ranges from 0–3, according to the disease activity and impact.

Composite Psoriatic Disease Activity Index (CPDAI)

	Not involved: 0	Mild: 1	Moderate: 2	Severe: 3
Peripheral arthritis		≤4 joints (swollen or tender) Normal function (HAQ < 0.5) ^a	≤4 joints with impaired function; or > 4 joints with normal function	>4 joints and impaired function
Skin disease		PASI ≤10 and DLQI ≤10	PASI ≤10 with DLQI >10; or PASI >10 with DLQI ≤10	PASI > 10 and DLQI > 10
Enthesitis		≤3 sites; normal function (HAQ < 0.5) ^a	≤3 sites with impaired function; or >3 sites with normal function	>3 sites and impaired function
Dactylitis		≤3 digits; normal function (HAQ < 0.5) ^a	≤3 digits with impaired function; or >3 digits with normal function	>3 digits and impaired function
Spinal disease		BASDAI < 4; normal function (ASQI < 6)	BASDAI > 4 with normal function; or BASDAI < 4 with impaired function	BASDAI > 4 and impaired function

table-entry

PASDAS

Recently, the (GRAPPA) and (OMERACT) initiatives recommended that the PsA Disease Activity Score (PASDAS) should be used in clinical trials but **not** in routine clinical practice

Rheumatol, (2014)

68 Tender joint count	
66 Swollen joint count	
CRP	
Patient's global VAS	
Physician's global VAS	
Leeds Enthesitis Index	
Dactylitis	
SF-36 (12) health questionnaire	
Total	0–10

Clinimetrics for dactylitis

- Dactylitis is a uniform soft-tissue inflammation of the entire digit, from the MCP to the DIP joints.
- Dactylitis involves feet more than hands, and may affect several digits simultaneously, with the 2nd & 5th toes most frequently involved.

Semin Arthritis Rheum, (2018)

Leeds Dactylitis Index



Circumference involved digit (A)	Circumference contralateral Digit (or Tables) (B)	Tenderness score (C)	Final score ((A/B) x C)

Enthesitis assessment instruments

1. Leeds Enthesitis Index LEI ;
2. MASES:
Maastricht Ankylosing Spondylitis Enthesitis Score;
3. SPARCC:
Spondyloarthritis Research Consortium of Canada)

Leeds Enthesitis Index (LEI)

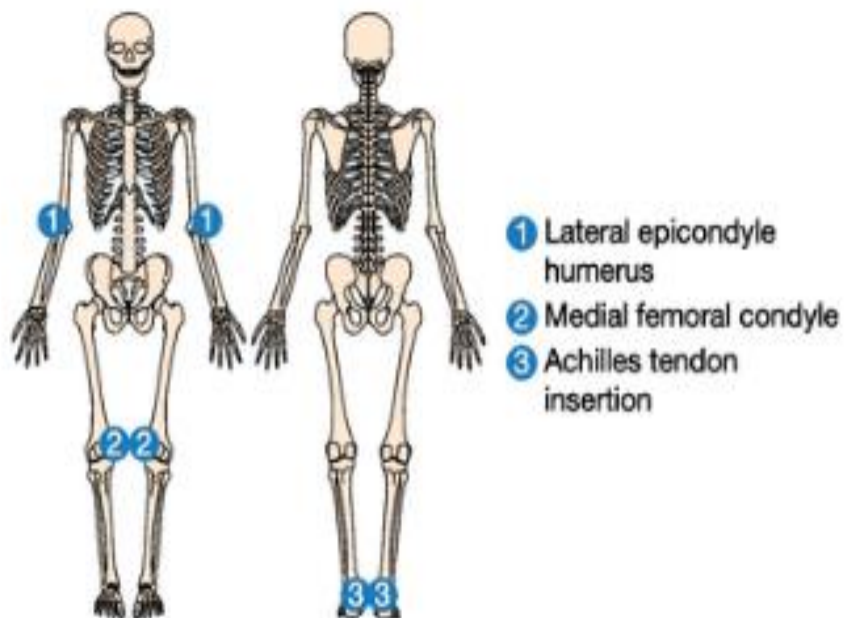
It was developed by the Bradford National Health Service .

6 easy-access enthesal sites :

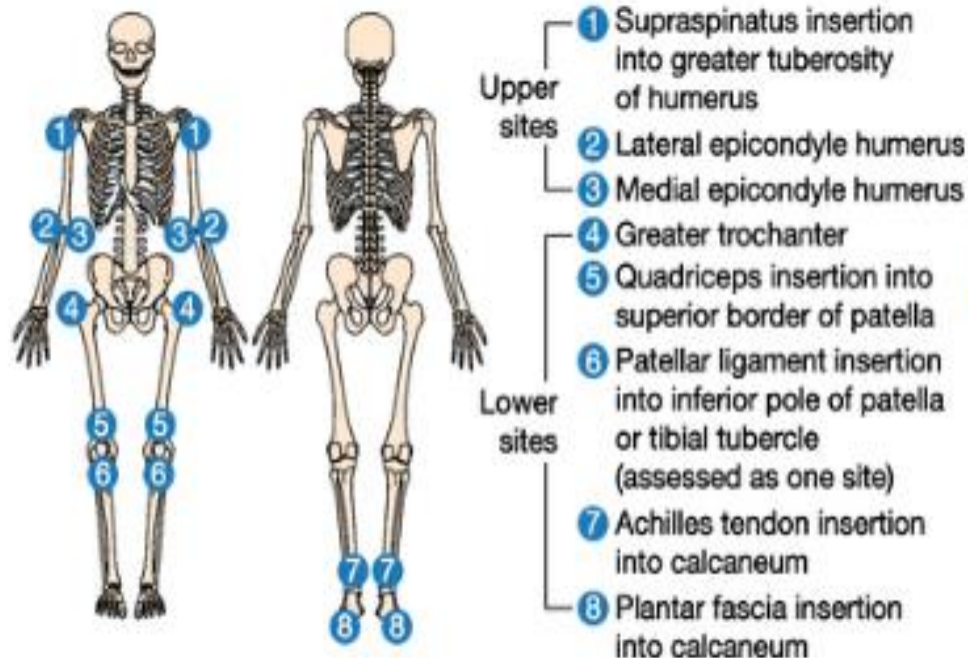
1. Achilles tendon, (left and right)
2. Humerus lateral epicondyle, (left and right)
3. Femur medial condyle, (left and right)

➤ The exam of each of the **6 sites** registers tenderness as present **(1)** or absent **(0)**, for a general score ranging from 0 to 6.

a LEI



b SPARCC



Enthesitis sites evaluated by LEI or SPARCC. LEI, Leeds Enthesitis Index; SPARCC, Spondyloarthritis Research Consortium of Canada Enthesitis Index. Adapted from Mease PJ, et al. J Rheumatol. 2017;44:599–608. Reproduced with permission

Structural Damage & functional Assessment

- 1) Health Assessment Questionnaire Disability Index (HAQ-DI)
- 2) Radiographic Scoring methods
- 3) Assessment of quality of life in PsA

Health Assessment Questionnaire Disability Index

What does it assess?

Impact of disease on ability to conduct activities of daily living

How is it assessed?

- 20 questions grouped in 8 categories, each scored from 0–3:
 - Dressing
 - Rising
 - Eating
 - Walking
 - Hygiene
 - Reach
 - Grip
 - Usual activities

What does it mean?

Higher scores = more disability /
reduced physical function *Clin Exp Rheumatol. 2005*

HAQ-DI

- The HAQ-DI has been widely employed in interventional clinical trials of PsA treatment .
- It has been adapted for the spondyloarthropathies (HAQ-S) by adding five items related to disability due to spinal involvement .

J Rheumatol, (1990)

Assessment of quality of life in PsA

PsA-specific HRQoL measurements with elements related to functional impairment , include

1. PsAQoL
2. PsA Impact of Disease (PsAID)
3. VITACORA-19 questionnaires

Ann Rheum Dis, 73 (2014)

PsAQoL

It is a self administered, 20-item questionnaire.

The items address domains including social participation, fatigue, mood & daily activities.

PsA Impact of Disease (PsAID)

Domains of health

Pain
Work and/or leisure activities
Functional capacity
Discomfort
Skin problems
Embarrassment and/or shame
Fatigue
Sleep disturbance
Coping
Anxiety, fear and uncertainty
Social participation
Depression

Category of impact

Physical impact (predominantly related to joints)

Impact related to skin

Psychological and social impact

Take home message

- Psoriatic arthritis is a heterogeneous disease with a wide spectrum of clinical manifestations.
- Recently , there has been much progress in the development of assessments tools, that provide an objective measure of disease activity and treatment response involving clear benefits if applied in routine clinical practice.
- Structural damage in patients with PsA is associated with decreased quality of life and physical function .
- Radiographic progression is an important outcome measure in clinical trials that is needed to identify effective therapies for patients with PsA.

WORLD PSORIASIS DAY

October 29th

Let's give a voice to the
125 million people living
with psoriasis/psoriatic
arthritis.

PSORIASIS | *newlifeoutlook*



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Thank You