

Spondyloarthritis Physical Exam Measures

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AxSpA Measures in Clinical Trials

Domains	Instruments
Disease activity	BASDAI; ASAS 20, 40, 5/6; ASDAS
Spine assessment	BASMI
Joint assessment	46/44 T/S joint count
Pain	VAS
Patient global	VAS
Physician global	VAS
Function/QOL	BASFI, SF-36, ASQoL, AS Health Index
Fatigue	FACIT, VAS
Enthesitis assessment	MASES, SPARCC, San Francisco
Dactylitis assessment	Present/absent, Leeds Dactylitis Index
Acute phase reactant	ESR, CRP
Imaging	Xray (SI joints, C, T, and L spine - mMSASS), MRI

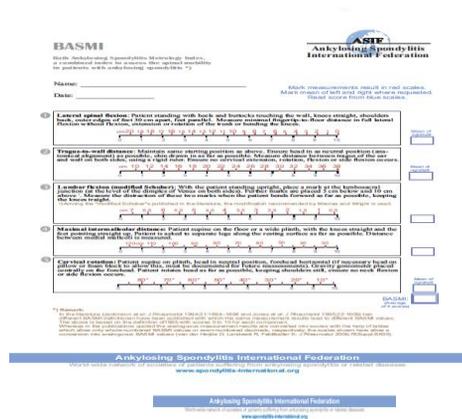
Axial SpA Measures

Spinal Mobility:

1. Tragus to Wall Measurement
2. Lateral Lumbar Flexion
3. Schober's Test
4. Cervical Spine Rotation
5. Intermalleolar Distance

Other Measures:

1. Tender and Swollen Joint Count (46/44)
2. Enthesitis Indices (MASES, SPARCC)
3. Dactylitis Assessment (Count, Score, Leeds Dactylitis Index)



Tragus to Wall and Occiput to Wall Measurement



Ear Anatomy (Wikipedia)



Tragus to Wall Measurement

Instructions: Place the patient standing with his / her back against the wall (chin is parallel to ground) and measure the distance between the Tragus and the wall. Record the better of 2 tries (lesser distance) in cm as the final value below.

Normal is individualized for each patient.

Tragus to Wall Measurement	1 st try	(cm)
	2 nd try	(cm)

Occiput-to-Wall Distance in a "Normal"? Individual—Effect of Normal Aging



Lateral Lumbar Flexion



Measure the distance from the middle finger to the floor with patient's back against the wall. Have the patient bend sideways keeping knees straight. Measure distance between neutral and lateral bend. Both sides are added together and divided by 2.

Photo courtesy of J. Brandt

Lateral Spinal Flexion

Instructions: Heels and back against the wall. No flexion of the knees, no bending forward. Distance between patient's middle fingertip and the floor. Bend sideways without bending knees or lifting heels. A second reading is taken and the difference between the two is recorded. The best of two tries is recorded for left and right. The mean of left and right gives the final result.

Normal greater than 10 cm.

Right: _____ Left: _____ Total (right + left/2): _____



Modified Schober's Test

Instructions: With the patient standing erect, place a mark at the midpoint of a line between the dimples of Venus. Place another mark 10 cm above the first mark and 5 cm below the first mark. Then, have the patient maximally bend forward, keeping the knees fully extended. With the spine in full flexion, re-measure the distance between the upper and lower marks in cm and enter the result as the *difference* between the two measures.

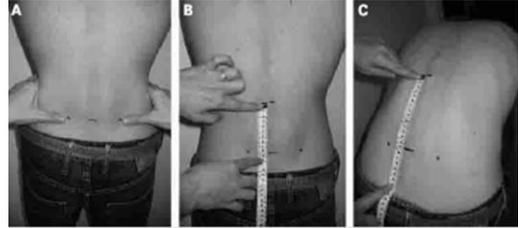
Modified Schober's Test Result: ____ (cm)

10 Centimeter Schober's Test

Instructions: With the patient standing erect, place a mark at the midpoint of a line that joins the posterior superior iliac spines. Place another mark 10 cm above the first mark. Then, have the patient maximally bend forward, keeping the knees fully extended. With the spine in full flexion, re-measure the distance between the two marks in cm and enter the result as the *difference* between the two measures.

Modified Schober's Test Result: ____ (cm)

Ten Centimeter Schober



Metrology—Problems

Schober—Ideal World



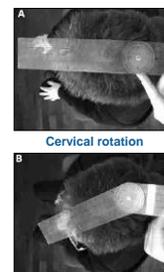
Schober—Real World

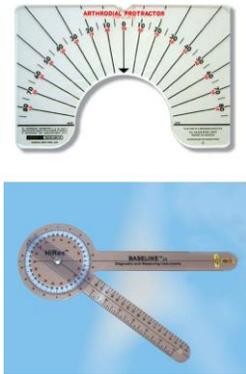


Goniometer Assessment of Cervical Rotation



Cervical Spine Rotation

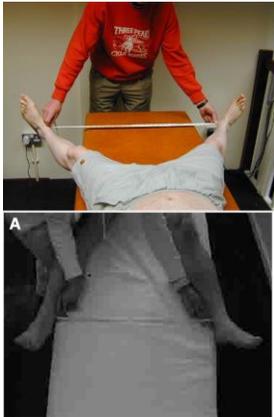




Cervical Spine Rotation

Instructions: Place the patient sitting with the chin parallel to ground. Place the goniometer on top of the head in line with the nose. Patient rotates the head maximally to the left and follow with the goniometer. Record the angle (in degrees). Repeat the procedure and take the greater of 2 tries. Then ask the patient to rotate the head on the right and measure. Repeat the procedure and take the better of 2 tries in degrees. The Mean of Left and Right is the final value.

Normal is > 70 degrees.



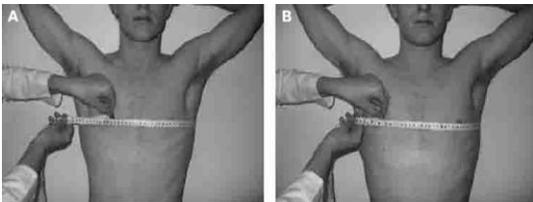
Intermalleolar Distance

Intermalleolar Distance

Instructions: Patient supine on the floor or a wide plinth, with the knees straight and the feet pointing straight up. Patient is asked to separate the legs as far as possible. Distance between medial malleoli is measured

Intermalleolar Distance Result: ____ (cm)

Chest Expansion



Chest Expansion Score

Instructions: Measured circumferentially at nipple line (4th IC space) in cm and recorded at maximal inspiration and maximal expiration. Record two tries, with the final score being the one with the larger difference between inspiration and expiration. Normal adjusted for age and gender.

Normal greater than 2.5 cm.

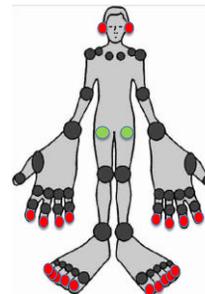
	Inspiration (cm)	Expiration (cm)	Difference (cm)
Chest Expansion Score	1 st try		
	2 nd try		
	Final Score		

Peripheral MSK Assessment in SpA (AS, AxSpA, PsA, PSpA)

Arthritis, Enthesitis, Dactylitis

Joint Counts

- Joint Count
 - 46/44 in AS
 - 68/66 in PsA
 - 28 in RA

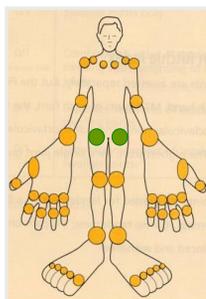


Sieper J. Ann Rheum Dis 2009;68(Suppl 1):i1-i44. doi:10.1136/ard.2008.104018
Chandran V, et al. Arthritis Rheum 2009;61:1235-42

Tender Joint (46) Assessment in AS

0 = no pain
X = pain

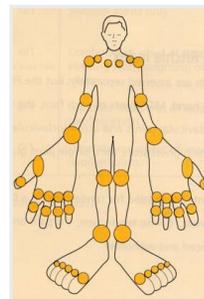
Total: _____



Swollen Joint (44) Assessment in AS

0 = no swelling
X = swelling

Total: _____



Joint Tenderness

Joint tenderness is pain in a joint present under defined circumstances. These include: pain at rest with pressure (for instance metacarpophalangeal and wrist joints); pain on movement of joint (for instance shoulders and tarsal joints); or from questioning about joint pain (for instance hips and cervical spine). Pressure to elicit tenderness should be exerted by the examiner's thumb and index finger which is sufficient to cause "whitening" of the examiner's nail beds.

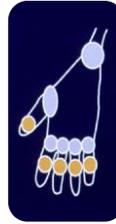
Joint Swelling

This is soft tissue swelling of the joint which is detectable along the joint margins. When a synovial effusion is present it invariably means the joint is swollen. Neither bony swelling nor deformity of the joints constitute joint swelling. Fluctuation is a characteristic feature of swollen joints. Joint swelling may influence the range of joint movement. This can be useful in determining the presence of swelling. Examples include decreased dorsiflexion of the wrist and decreased elbow extension when joint swelling is present.

Notes on Joint Assessment Technique

- Standardization of pressure
 - Blanching of ~20% of distal tip of examiner's nail represents pressure of 4 kg/cm
- Four point technique

Proximal Interphalangeal Joints



EULAR Joint Assessment Manual

Metacarpal Joint



Wrist Joint



EULAR Joint Assessment Manual

Knee



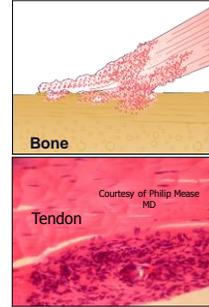
Ankle Joint



Metatarsal Joint

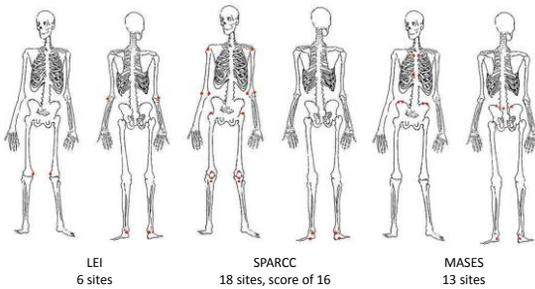


Enthesitis



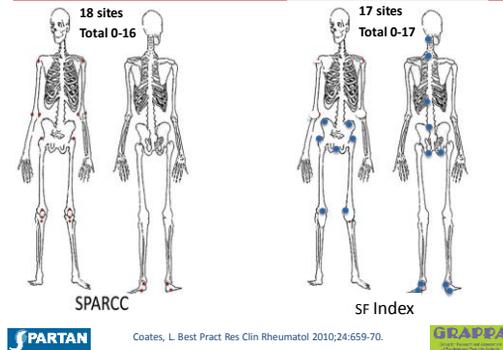
McGonagle D. *Arthritis Rheum.* 1999. 42:1080-1086.

Enthesitis Indices Used in Clinical Trials

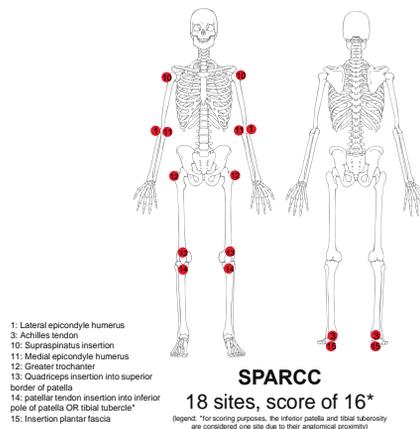
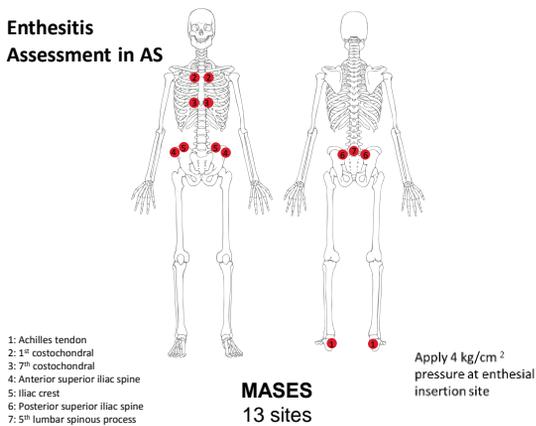


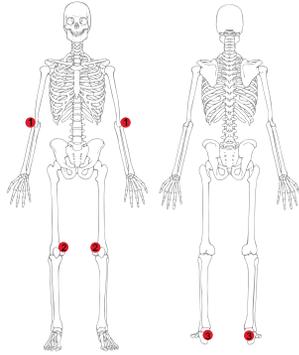
Mease P. *Arth Care & Research.* 2011;63:64-85

Enthesitis Indices



Enthesitis Assessment in AS





- 1 Lateral epicondyle humerus
- 2 Medial condyle femur
- 3 Achilles tendon

LEI
6 sites

Dactylitis

- Count
- Score (0-3)
- Leeds Dactylitis Index (LDI)



Mease P. Arth Care & Research. 2011;63:64-85

LDI scoring



Standard reference: Table - hands		
Digit	Men	Women
Thumb	70	58
Index	63	54
Middle	63	54
Ring	59	50
Little	52	44

Finger or toe	Circumference involved digit (A)	Circumference contralateral Digit (or Tables) (B)	Tenderness score (C)	Final score: $\frac{[(A/B) - 1] \times C}{100}$
TOTAL				

Tenderness score (response to squeeze): 0 no tenderness 1 tender 2 tender & wince 3 tender & withdraw

Standard reference: Table - feet		
Digit	Men	Women
Great toe	82	72
Second	52	46
Middle	50	44
Fourth	50	44
Little	52	45

How to use the Dactylometer

- The fingers and toes are visually inspected by the examiner. Those digits which look dactylitic are measured.
- Slip the loop of the dactylometer around the base of the digit adjacent to the web space. Pull the indicator strip tight so that the base of the digit blanches slightly (see illustration). The collar of the device should be firmly pressed against the base of the digit
- If both ipsilateral and contralateral digits are thought to be dactylitic then use the reference range (given at the foot of the sheet) as the comparator.
- Squeeze the digit at the level of the proximal phalanx and record the tenderness score as indicated
- Calculate the total score as indicated or enter the values in the Excel spreadsheet.
- It, as illustrated.
- Record the circumference in mm on the dactylometer record sheet
- Repeat the procedure on the contralateral digit