structures, 41 knee structures, 14 ankle structures and 2 foot structures. The number of structures described for each joint part was as follows: 3 shoulder, 13 elbow, 2 wrist, 4 hand, 7 hip, 25 knee, 14 ankle, 1 foot.
Conclusions: Several anatomical structures are lacking standardized MSUS examination in children.
Disclosure of Interest: None declared
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FRI0650 NON OMERACT -EXPERT RHEUMATOLOGISTS SONOGRAPHERS AND INTER-ULTRASOUND MACHINE RELIABILITY OF THE OMERACT ULTRASOUND SCORING IN RHEUMATOID ARTHRITIS IN A CLINICAL-BASED SETTING: A BELGIAN STUDY

J.-P. Hauzeur[1], M.-J. Kaiser[2], J. Bentin[3], J.-P. Brasseur[4], B. André[2], P. Carron[5], E. Deflandre[2], C. Naveau[6], C. Ribbens[2], C. Rinkin[2], R. Wittoek[5], M.-A. D'Agostino[7], V. De Maertelaer[8] on behalf of The Belgian Group of Ultrasonography in Rheumatology. *[1]Rheumatology, CHIREC, Braine l'Alleud; [2]Rheumatology, CHU Liège, Liege; [3]Rheumatology, CHU Brugmann, Brussels; [4]Rheumatology, CHU Mont-Godinne, Yvoir; [5]Rheumatology, Ghent University Hospital, Ghent; [6]Rheumatology, GHDC, Charleroi, Belgium; [7]Rheumatology, hôpital Ambroise Paré, Boulogne-Billancourt, France; [8]Biostatistics and Medical Informatics & IRIBHM, School of Medicine, ULB, Brussels, Belgium*

Background: The OMERACT Ultrasound scoring system (USSS) of joint in RA has been shown to be reliable and sensitive to change when used in clinical trial setting. However it is unclear whether this reliability is also achieved in clinical daily practice among Rheumatologists performing US in a non-research setting and using different machines.
Objectives: To assess agreement between non-research sonographers in scoring synovitis using the OMERACT USSS and using the scoring of an OMERACT expert as gold standard. To assess the reliability of the USSS by using different US machines.
Methods: First an OMERACT US expert presented the scoring method and supervised a training session. The wrist, MCP 2 and 3 joints of the left hand (dorsal aspect) of 3 RA patients were then successively evaluated by 9 Rheumatologists with 3 different US machines: Hitachi Arietta = H, GE Logic E9 = G, Esaote MyLab 7= E. The USSS included B-mode acquisition of synovial hypertrophy (SH), joint effusion (JE) and bone erosion (BE), and Power-Doppler (PD) activity. JE, SH and BE were scored binary; SH and PD were score semi quantitatively (0 to 3), by both the 9 participating Rheumatologists and the OMERACT US expert. The agreement between each participant with the scoring of the OMERACT US expert was quantified by proportions. The inter-US machine reproducibility was assessed by kappa statistics for discrete variables and weighted kappa's for ordinate.
Results: The 3 joints of 3 patients each were evaluated on the 4 US items (SH, JF, BE, PD) on a different US machine. So 27 values were obtained for each joint within each item. The percentages of exact agreement (PEA) between these 27 values and the scores of the OMERACT US expert were calculated and ranged between 33% (9/27) for SH-MCP3, 37% for JF-MCP2 and PD-Wrist, 41% for SH-wrist, 48% BE-MCP3, 52% PD-MCP3, 56% PD-MCP3, 59 JF-wrist and BE-MCP2, 63% JF-MCP3, 67% SH-MCP2 and 78% (21/27) for BE-wrist. For the inter-US machines reproducibility, kappa between the 3 machines was calculated on 9 data (3 patients x 3 joints). The reliability was low for detecting JE $\leq$0.211. Acceptable reliability among machines was found for SH, BE and PD (table 1).

Table 1

		H/G	H/E	E/G
Kappa values	JF	0,211	0,143	0,211
	SH	0,529	0,602	0,584
	PD	0,455	0,709	0,434
	BE	0,628	0,615	0,550
Corresponding P-values	JF	0,357	0,588	0,357
	SH	<0,001	<0,001	<0,001
	PD	0,001	<0,001	<0,001
	BE	0,002	0,003	0,004

Conclusions: Non OMERACT-expert Rheumatologists can apply the USSS, and this score works well across different machines. The difference among machines and sonographers is mostly captured by the low reliability of JE. The OMERACT USSS could be used by sonographers in their everyday clinical practice to evaluate the activity of RA patients. Further studies in clinical-based settings will allow to define more precisely the applicability of this scoring system.
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FRI0651 OBSERVATIONAL REPRODUCIBILITY STUDY OF UCO-TRACK©, AN AUTOMATIZED MEASUREMENT OF MOBILITY, IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

J. Garrido[1], E. Collantes[2], J. Mulero[3], B. Flores[3], P. Zarco[4], R. Mazzucchelli[4], M. Domínguez-González[4], L. Carmona[5], L. Cea-Calvo[6], M. Arteaga[6], R. Curbelo[5]. *[1]I. Mamónides; [2]H Reina Sofía, Córdoba; [3]H Puerta de Hierro; [4]H Fundación Alcorcón; [5]I. Salud Muscular; [6]Medical Affairs, Merck Sharp & Dohme, Madrid, Spain*

Background: The classical measures of spinal mobility for the assessment of patients with axial spondyloarthritis (SpA), such as BASMI, are subject to inter-observer variability.
Objectives: We assessed the reproducibility of the UCOASMI index (University of Córdoba Ankylosing Spondylitis Metrology Index), a composite index of cervical and spinal mobility obtained with the UCOTrack© motion analysis system (an innovative 3D motion capture system based on video-images) [1], in patients with axial SpA.
Methods: An observational study of repeated measures was carried out in 3 Spanish centers with the technology available (H. Reina Sofía, Córdoba, H. Puerta de Hierro, Madrid and H. Fundación Alcorcón, Madrid). For the assessment of intra-observer reliability, 30 patients (10 per center) were evaluated twice, 3–5 days apart. For the inter-observer reliability, 9 patients were evaluated in the 3 centers by 3 observers (window 3–7 days). The Intraclass Correlation Coefficients (ICC) for UCOASMI and classical metrology measurements were calculated.
Results: We included 30 patients (73% men, mean age 52 [SD 9], mean BASDAI 3.3 [SD 2]). The table shows the intra- and inter-observer reliability values. The reproducibility of UCOASMI was very high, with inter-observer ICC 0.99, and intra-observer ICC 0.97, 0.97 and 0.99, higher than most conventional measurements. The Schober test and cervical rotation showed lower reproducibility (inter-observer ICC between 0.58 and 0.68) and variable intra-observer ICC.
Conclusions: The reproducibility of the UCOASMI, obtained through the UCOTrack© motion analysis system in the 3 centers, was very high, in contrast to the lower reproducibility of the Schobert test and other measures of classical metrology. The reliability of this system opens the door to using this technology to monitor SpA patients and in future research studies.
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FRI0652 MEDIAN NERVE ULTRASOUND FINDINGS AND CLINICAL CORRELATIONS IN PATIENTS WITH SYSTEMIC SCLEROSIS: A COMPARATIVE ANALYSIS WITH MATCHED CONTROL SUBJECTS

J. Sousa-Neves[1], M. Cerqueira[1], D. Santos-Faria[1], J. Leite Silva[1], A. Raposo[2], C. Afonso[1], F. Teixeira[1]. *[1]Rheumatology, Hospital Conde de Bertiandos, ULSAM, Ponte de Lima; [2]Rheumatology, Centro Hospitalar Trás-os-Montes e Alto Douro, Vila Real, Portugal*

Background: Median nerve (MN) entrapment in the carpal tunnel seems to be common in patients with Systemic Sclerosis (SSc). Ultrasound (US) evaluation of MN in SSc patients was performed in some previous studies but conclusions were not linear (1).
Objectives: To compare specific MN US parameters of patients with SSc and a group of age and sex matched controls. To understand if specific clinical variables correlate with US parameters assessed in the group of SSc patients.

Abstract FRI0651 – Table 1

	Inter-observer reliability	Intra-observer reliability		
	ICC (95% CI)	Observer 1 ICC (95% CI)	Observer 2 ICC (95% CI)	Observer 3 ICC (95% CI)
UCOASMI	0.99 (0.98–1.00)	0.99 (0.98–1.00)	0.97 (0.94–1.00)	0.97 (0.93–1.00)
Conventional Metrology				
BASMI	0.50 (0.11–0.89)	0.78 (0.54–1.00)	0.61 (0.21–1.00)	0.99 (0.97–1.00)
Right lateral flexion	0.83 (0.64–1.00)	0.94 (0.87–1.00)	0.91 (0.80–1.00)	0.96 (0.91–1.00)
Left lateral flexion	0.88 (0.75–1.00)	0.96 (0.92–1.00)	0.93 (0.85–1.00)	0.97 (0.94–1.00)
Right tragus-wall distance	0.97 (0.95–1.00)	0.96 (0.91–1.00)	0.91 (0.81–1.00)	0.99 (0.98–1.00)
Left tragus-wall distance	0.97 (0.95–1.00)	0.96 (0.91–1.00)	0.90 (0.78–1.00)	0.98 (0.97–1.00)
Schöber test	0.68 (0.39–0.97)	0.64 (0.27–1.00)	0.98 (0.97–1.00)	0.95 (0.89–1.00)
Intermaleolar distance	0.87 (0.73–1.00)	0.93 (0.85–1.00)	0.82 (0.61–1.00)	0.98 (0.97–1.00)
Right cervical rotation	0.65 (0.33–0.96)	0.82 (0.61–1.00)	0.94 (0.87–1.00)	0.98 (0.97–1.00)
Left cervical rotation	0.58 (0.22–0.94)	0.91 (0.81–1.00)	0.75 (0.47–1.00)	0.98 (0.97–1.00)

Methods: We conducted a cross-sectional study comparing MN US parameters of SSc patients followed up at our Rheumatology Unit and control subjects. Exclusion criteria included body mass index (BMI)>30, previous wrist trauma and known diagnosis of carpal tunnel syndrome. Forty-eight out of 62 SSc patients and 45 healthy age and sex matched controls were enrolled. Subjects were consecutively evaluated in our Department. A General Electric LOGIQ S8 US with a 15 MHz linear transducer was used for assessment. MN cross-sectional area (MNA) and perimeter (MNP) of both sides of each person were measured at the level of the carpal tunnel inlet. For comparative analysis, the mean MNA and MNP of combined right and left side were used. Patients' relevant clinical and demographic data were collected. Modified Rodnan skin score (mRSS), hand mobility (HAMIS) and SSc Severity Scale (SScSS) were also assessed. Statistical analysis included Chi-Square test, Mann-Whitney U-test, Kruskal-Wallis and Spearman correlation coefficient. P value <0.05 was defined as statistically significant.

Results: A total of 186 MN were assessed by US. Both groups had the same proportion of diabetes and history of tunnel carpal surgery (p=0.803 and p=0.339, respectively). Median of MNA and MNP were significantly higher in SSc patients (7.5 mm^2 [6.6 to 9.5] and 13.8 mm [12.4 to 15], respectively) (median [interquartile range]) compared with controls (7.0 mm^2 [6 to 8] and 12.9 mm [11.7 to 14], respectively) (p=0.021 and p=0.018, respectively). Higher mRSS correlated with higher MNA (Spearman's rho=0.335, p=0.02) and MNP (rho=0.336, p=0.02). Values of MNA and MNP did not correlate with age, disease duration, HAMIS and SScSS, and were similar according to categories of gender and subset of disease (p>0.05). However, median of MNA and MNP were significantly different between the 3 phases of skin involvement (p=0.007 and p=0.009, respectively), being higher in patients in the oedematous phase (median MNA of 9.25 mm^2 [7.5 to 11.5] and median MNP of 14.5 mm [13.5 to 16.9]).

Conclusions: Our study confirmed an increased MNA and MNP in SSc patients in comparison with healthy age and sex matched controls. Patients in the oedematous phase of skin involvement and patients with higher skin thickness assessed by mRSS showed higher MNA and MNP values.

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FRI0653 SALIVARY GLAND ULTRASOUND IS RELATED TO AUTOIMMUNITY IN PRIMARY SJÖGREN SYNDROME

J.C. Nieto-González[1], F.J. López-Longo[1], E. Estrada[2], E. Naredo[3].
[1]Rheumatology, Hospital G.U. Gregorio Marañón; [2]Psychology, Universidad Camilo José Cela; [3]Rheumatology, Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain

Background: Primary Sjögren syndrome (pSS) is a systemic autoimmune disease involving exocrine glands, mainly ocular and salivary glands. Salivary gland ultrasound (SGU), of submandibular and parotid glands, in pSS is characterized by hypo/anechoic rounded areas within gland parenchyma, losing the normal homogeneity of the glands (typical SGU)[1]. SGU is a reliable imaging technique for assessing gland echostructure in pSS[2].

Objectives: The aim of our study is to evaluate the relation between typical SGU and clinical and laboratory data in pSS

Methods: We performed SGU to 100 patients with pSS from our rheumatology department selected randomly from a database. We used a semiquantitative score from 0 to 3. Grades 0 and 1 were considered as normal and grades 2 and 3 were considered as typical for pSS. We retrospectively collected demographics (age, gender, disease duration), clinical (extra-glandular manifestations, parotid swelling and lymphoma) and laboratory data (ESR, CRP, rheumatoid factor (RF), antinuclear antibodies (AAN), anti-SSA and anti-SSB antibodies). We divided the patients into 3 groups depending on their autoimmunity profile. Complete seropositive group were patients with RF, AAN and antiSSA or antiSSB positives simultaneously or sequentially. Simple seropositive group were patients with any positive autoantibody (RF/AAN/antiSSA or antiSSB) but not all of them together. Finally, patients without positive autoantibodies were included in the seronegative group

Results: We excluded 7 patients because they were diagnosed with secondary SS. From 93 pSS patients analyzed, 32 (frequency 34.5%) had a typical SGU. Demographics, extra-glandular manifestations and lymphomas were similar between patients with typical SGU and patients with normal SGU. Parotid swelling and longer disease duration were associated with a typical SGU (p<0.05). Patients with positive autoantibodies (AAN, RF, antiSSA and antiSSB) had more frequently a typical SGU. Complete seropositive group had the highest frequency of typical SGU, followed by simple seropositive group. All seronegative patients had a normal SGU. SGU relation with autoimmunity is shown in table 1

	Total	Typical SGU	Normal SGU	*p*
n (%)	*n*=93	*n*=32	*n*=61	
Complete seropositive group	36 (38.7)	25 (78.1)	11 (18.0)	**<0.001**
Simple seropositive group	44 (47.3)	7 (21.9)	37 (60.7)	**<0.001**
Seronegative group	13 (14)	0	13 (21.3)	**<0.001**
AAN + (n:90)	70 (76.9)	31 (96.9)	39 (66.1)	**0.001**
RF + (n:92)	55 (59.1)	28 (87.5)	27 (44.3)	**<0.001**
Anti-Ro + (n:86)	46 (52.9)	27 (84.4)	19 (34.5)	**<0.001**
Anti-La + (n:86)	28 (33.3)	19 (63.3)	9 (16.7)	**<0.001**

Conclusions: Longer disease duration and parotid swelling were associated with typical SGU. Typical SGU was associated with positive autoimmunity, moreover all seronegative patients had a normal SGU

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FRI0654 ULTRASOUND DETECTED PATHOLOGY IN THE ENTHESIS OF THE LOWER LIMB IN AN AGE STRATIFIED COHORT OF ASYMPTOMATIC SUBJECTS -A PROSPECTIVELY DESIGNED DESCRIPTIVE CROSS-SECTIONAL STUDY

J. Guldberg-Møller[1], S.M. Nielsen[1], M.J. Koenig[2], S. Torp-Pedersen[3], L. Terslev[4], A. Torp-Pedersen[1], R. Christensen[1], H. Bliddal[1], K. Ellegaard[1].
[1]The Parker Institute, Frederiksberg; [2]Department of radiology, Herlevand Gentofte Hospital, Gentofte; [3]Department of radiology, Righhospitalet; [4]Rigshospitalet, Glostrup, Denmark

Background: Ultrasound (US) examination of the entheses is increasingly used to document pathological changes in e.g. psoriasis arthritis and spondyloarthritis. Grey-scale (GS) US is used to assess morphological changes and Doppler US to assess increased blood flow.

The OMERACT expert group has agreed on the following elementary components when assessing the entheses on US examination; hypoechogenicity, increased thickness, enthesophytes/ calcifications, erosions, and Doppler activity (1).

Little is known about US assessment of the entheses in asymptomatic persons, thus the frequency and distribution of the above components between genders and age groups is uncertain.

Objectives: To investigate the frequency of enthesitis components in the entheses of the lower limb in a group of healthy subjects.

Methods: We recruited 64 subjects (32 women and 32 men), eight women and eight men in four decades, from 20 to 59 years. None of the subjects had previous or present signs of tendon or joint disease in the lower extremities. None of the participants took any kind of medication.

All subjects were examined by a rheumatologist and blood samples were collected to rule out any clinical signs of tendon or joint disease e.g. swollen and tender

	Age 20-29 (n=8/8)		Age 30-39 (n=8/8)		Age 40-49 (n =8/8)		Age 50-59 (n =8/8)		Total (n=64)
	F	M	F	M	F	M	F	M	
Quadriceps tendon									
Doppler activity		1				1		1	3(5%)
Enthesophyte/ calcifications	1	4	3	2	1	4	2	5	22 (34%)
Increased thickness		1				1			2(3%)
Hypoechogenicity		1				1		1	3(5%)
Patella tendon proximal									0
Doppler activity									
Enthesophyte/ calcifications	1							1	2(3%)
Increased thickness			1				1	1	3(5%)
Hypoechogenicity			1				1	1	3(5%)
Patella tendon distal								1	1(2%)
Doppler activity									
Enthesophyte/ calcifications			1				1	1	3(5%)
Increased thickness			2		1	2	1	3	9(14%)
Hypoechogenicity			1		1	1	1	2	6(9%)
Achilles tendon									0
Doppler activity									
Enthesophyte/ calcifications	3	3	1	6	2	5	2	4	26(41%)
Increased thickness		1		3		1		1	6(9%)
Hypoechogenicity									0
Plantar fascia							1		1(2%)
Enthesophyte/ calcifications									
Increased thickness	1	1		2	1	2	1		8(13%)
Hypoechogenicity	1			1		1			3(5%)

F, female; M, male. All empty fields have the value 0.