Results: We included FOI scans of patients with PsA/Pso (n=80), patients with RA (n=78) and healthy controls (n=25). Significantly more PsA/Pso patients showed subclinical skin enhancement on the back of their hands than RA and healthy individuals (PsA/Pso: 72.5%, RA: 20.5%, healthy controls: 28.0%; $p<0.001$). By using the pattern of skin enhancement, it was possible to categorize 58 of 80 patients correctly as PsA/Pso (72.5%), 60 out of 78 as RA (76.9%) and seventeen out of 25 as healthy controls (68.0%; p -value <0.001). We could show an influence of the body weight (kg) ($p<0.001$, OR 1.04, CI 1.02; 1.06) on the FOI results; no further correlation with cardiovascular risk factors was detected.

Conclusion: We were able to proof our primary hypothesis that it is possible to visualize subclinical subdermal skin inflammation in PsA/Pso patients using FOI. Furthermore, we were also able to categorize PsA/Pso and RA patients correctly by using our newly developed method. Although we could not establish a correlation between subdermal skin enhancement and cardiovascular risk factors, we demonstrated an important influence of the body weight on our FOI results. FOI may be a helpful novel tool to study microcirculation in rheumatic diseases with skin involvement.

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- [1] Werner SG, et al. Inflammation assessment in patients with arthritis using a novel in vivo fluorescence optical imaging technology. *Ann Rheum Dis*. 2012;71(4):504-10.

Figure. Left picture: The enhancement is mostly yellow on green ground classified as grade 1. Middle picture: The enhancement is red with minimal white signals classified as grade 2. Right picture: The enhancement in the marked area shows more white than red signals which presents grade 3.

Disclosure of Interests: Angelique Schmidt Speakers bureau: Speakers fee from Novartis, Roche, Abbvie, BMS, Anne-Marie Glimm: None declared, Paula Hoff: None declared, Gabriela Schmittat: None declared, Gerd Rüdiger Burmester Consultant of: AbbVie Inc, Eli Lilly, Gilead, Janssen, Merck, Roche, Pfizer, and UCB Pharma, Speakers bureau: AbbVie Inc, Eli Lilly, Gilead, Janssen, Merck, Roche, Pfizer, and UCB Pharma, Jens Klotsche: None declared, Sarah Ohnrdorf: None declared

DOI: 10.1136/annrheumdis-2020-eular.1627

OP0312

THE IMPACT OF AN ULTRASOUND ATLAS FOR SCORING SALIVARY GLANDS IN PRIMARY SJÖGREN'S SYNDROME: A RELIABILITY EXERCISE

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Background: Salivary gland ultrasound (SGUS) may have the potential of facilitating diagnosis and therapy monitoring of salivary gland disease in patients with primary Sjögren's syndrome (pSS). A novel consensus based OMERACT SGUS scoring system for the parotid and submandibular glands has recently been developed.(1)

Objectives: To assess the reliability of 3 readers using the written definition of the scoring system provided by the OMERACT group and subsequent the impact of a SGUS-atlas based on the OMERACT SGUS scoring system.

Methods: 3 sonographers with 6 months to 10 years US experience performed a US exercise of 30 SGUS images of patients with SS. 16 images were of the submandibular gland (SMG) and 14 images of the parotid gland (PG) ranging from normal to varying degrees of abnormalities. The images were scored using the US scoring system provided by the OMERACT-group and subsequently using a SGUS atlas made for the study consisting of 4 images of every grade 0-3 of both the SMG and the PG. The readings were performed over 4 rounds: the first reading without using the atlas and second reading using the atlas 1 week later. The 30 images were scrambled by a physician not included in the readings and a third and fourth reading were performed without and with the atlas respectively – with 1 week in between. Inter- and intra-reader reliability were calculated by kappa-tests.

Results: Light weighted Kappa for intra- and inter-reliability was determined for each reading. The results of the intra-reader reliability was ranging from moderate to almost perfect with improvement in the 2nd round of readings and

with use of the atlas. The inter-reader reliability was moderate and better in the 2nd round of readings. Readings improved with the atlas. Details are shown in table 1.

Table 1

Intrareader reliability Weighted Kappa:	Weighted Kappa, reader 1-3
Reading 1 without atlas vs. reading 1 with atlas	0.93, 0.85, 0.80
Reading 2 without atlas vs. reading 2 with atlas	0.78, 0.93, 0.78
Reading 1 without atlas vs. reading 2 without atlas	0.78, 1.00, 0.58
Reading 1 with atlas vs. reading 2 with atlas	0.93, 0.93, 0.86
Interreader reliability Weighted Kappa:	Weighted Kappa: mean (min – max)
Reading 1 without atlas	0.50 (0.33 – 0.72)
Reading 1 with atlas	0.55 (0.39 – 0.86)
Reading 2 without atlas	0.55 (0.33 – 0.93)
Reading 2 with atlas	0.60 (0.40 – 0.93)

Conclusion: The results of the inter- and intra-reliability showed a moderate to almost perfect agreement respectively, of scoring SGUS in patients with pSS and especially in the 2nd round of readings indicating that training and the SGUS atlas increased the reliability.

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Disclosure of Interests: Nanna Surlemont Schmidt: None declared, Viktoria Fana: None declared, Hanne Merete Lindegaard: None declared, Lene Terslev Speakers bureau: LT declares speakers fees from Roche, MSD, BMS, Pfizer, AbbVie, Novartis, and Janssen.

DOI: 10.1136/annrheumdis-2020-eular.3639

Fractures, more than bone alone: the role of sarcopenia

OP0313

THERAPEUTIC APPROACHES TO OSTEOSARCOPENIA: DENOSUMAB EFFECT ON FALLS RISK, PHYSICAL PERFORMANCE AND WALKING SPEED

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Background: There is a strong association between osteoporosis and skeletal muscle dysfunction. Heparan-sulfate proteoglycans are abundant in skeletal muscles and may represent a target for RANKL inhibitor. It was noted that patients who completed their planned denosumab therapy course (5-years) started to sustain falls.

Objectives: To assess the effect of Denosumab on falls risk, physical performance, grip strength and gait speed and whether there is a relation with bone mineral density.

Methods: 127 osteoporotic patients treated with denosumab were assessed prior to starting denosumab therapy for: baseline BMD using DXA scan, blood test for osteoporosis bone profile, self-reported falls risk using (FRAS score [1]), fracture risk using FRAX, handgrip strength using a calibrated dynamometer (the best of three trials of the dynamometer testing was recorded), the patient's physical performance assessed by testing for: Short Physical Performance Battery (SPPB), Timed Up and Go (TUG), and the 4 Meter Walk Gait Speed. Same measures were assessed again after completing 5-years of denosumab therapy. Comparison groups included 112 patients diagnosed to have osteoporosis and treated with zoledronate (Zol), once yearly IV injection, for 3-years; and 134 patients treated with once weekly oral alendronate (Aln) 70mg for 5-years. The patients were assessed for the same parameters as in the denosumab therapy. All the measures were reassessed 1-year after stopping the osteoporosis therapy.

Results: No differences were seen on comparing the baseline parameters of the 3 groups. In comparison to the baseline, there was significant increase in the BMD in the 3 groups, Denosumab/Zol/Aln at both spine and hip ($P = 0.02$) at 5-, 3- and 5-years of treatment respectively. In the denosumab group, at 5-years of therapy, there was significant decrease in falls risk score (-1.4 , 95% CI = -2.8 to -0.7 ; $P = .01$), significant improvements in the grip strength ($+4.2$ Kg, $P = 0.01$), SPPB score (1.2 points; 95% CI = -0.07 to 2.2 ; $P = .02$), TUG (1.7 seconds; 95% CI = -2.2 to 0.1 ; $P = .031$) and gait speed (0.1 m/s; 95% CI = 0.03 - 0.2 ; $P = .01$). Zol and Aln improved significantly SPPB score (0.9 and 0.8 points; $P = .04$), TUG (1.4 and 1.3 seconds; $P = .05$) and gait speed (0.2 and 0.3 m/s; $P = .02$) respectively, however, there was no significant change in the falls risk ($p = 0.06$ and 0.07 respectively). 1-year after stopping Denosumab, there was significant worsening of the falls risk score, grip strength, SPPB score, TUG and gait speed ($P = 0.1$). There was no difference in all the measures 1-year after stopping Zol and Aln. There was no relation to the increase in BMD gained.

Conclusion: Denosumab displayed positive impact and significant improvements in physical performance, grip strength and gait speed. Also, Denosumab, enhanced multidirectional agility as depicted by TUG. Collectively, this would explain the reduction of falls risk which got worse on stopping the medication.

Osteoporosis and sarcopenia share similar risk factors, highlighting muscle-bone interactions, which may result in debilitating consequences, such as falls and fractures. RANK/RANKL/OPG pathway, a key regulator of bone homeostasis, may contribute also to the regulation of skeletal muscle integrity and function.

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Acknowledgments: Ali El Miedany for his help in data entry

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.6521

Clinical symposium axSpA: Treat-to-target in axSpA: myth or reality?

OP0314

FACTORS ASSOCIATED WITH 5-YEAR DRUG-FREE REMISSION IN EARLY ONSET AXIAL SPONDYLOARTHRITIS PATIENTS: DATA FROM DESIR COHORT

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Background: It is recommended to target remission when treating a patient with a chronic inflammatory rheumatism. To date, drug-free (DF) remission has been poorly investigated in axial Spondyloarthritis (axSpA).

Objectives: 1/To estimate the frequency of patients in DF remission after 5 years of follow-up in a cohort of early axSpA and 2/to assess the factors associated with 5-year DF Remission.

Methods: *Patients:* All patients included in DESIR (DEvenir des Spondyloarthrites Indifférenciées Récentes) cohort were selected for this analysis. *Definition of 5-year DF Remission:* 1/all patients in ASAS partial remission and/or ASDAS<1.3 at 5 year visit and 2/ taking no disease modifying anti-rheumatic drugs (DMARDs, including synthetic and biologics) only at 5-year visit (patients could have received DMARD before the 5-year visit) and 3/ with a NSAIDs score ≤ 25 at the 5-year visit. *Covariates analysed:* age, gender, smoking status, body mass index, disease classification criteria (ASAS, Amor, ESSG, New York), presentation at onset (peripheral or extra-articular features), disease activity at onset (BASDAI, ASDAS-CRP, CRP, MASES, TJC or SJC), functional impairment at baseline (BASFI, HAQ-AS, BASMI), comorbidities, baseline imaging data (radiographic sacroiliitis, mSASSS, MRI sacroiliitis, spine MRI Berlin score), NSAID intake within 6 months before baseline visit and 5-year treatment intake (including DMARDs, corticoids and NSAIDs). *Statistical analysis:* The associations between each of these clinical factors and the 5-year DF remission were tested by logistic regression. A multivariate model was built, stepwise procedure, to identify the independent variables associated with 5-year DF remission.

Results: Of the 708 patients included in DESIR cohort, 419 were seen at the 5-year visit and 72 (17.0%) were in DF remission (50% of males, aged of 33.08 years (SD:8.0), disease duration: 1.26 years (SD: 0.72), HLA-B27 in 71%, 26.4% had a MRI sacroiliitis). Patients in 5-year DF remission had lower symptom duration (1.3 year versus 1.6 year, $p=0.01$) had lower disease activity (BASDAI at baseline: 30.1 versus 46.1, $p<0.0001$, ASDAS-CRP: 1.96 versus 2.75, $p<0.0001$,

CRP: 3.9 versus 8.6, $p=0.01$) had less peripheral involvement (at least 1 enthesitis at baseline: $n=33$ (45.8%) versus $n=226$ (65.1%), $p=0.002$; at least 1 painful joint at baseline: $n=24$ (33.3%) versus $n=196$ (56.5%), $p=0.0006$) less functional impairment (HAQ-AS: 0.32 versus 0.69, $p<0.0001$, BASFI: 14.3 versus 32.1, $p<0.0001$, BASMI: 1.98 versus 2.51, $p<0.0001$), and had lower NSAIDs intake at baseline (NSAIDs score: 28.2 versus 48.1, $p=0.0001$). Interestingly, there was no difference in sacroiliac bone marrow oedema on MRI while Berlin scores on spine MRI were lower in patients in 5-year DF remission (Berlin score mean: 0.41 versus 1.24, $p=0.03$). During the 5 years of follow-up, patients in 5-year DF remission received less often analgesics ($n=46$ (63.9%) versus $n=297$ (85.3%), $p<0.0001$) and anti-TNF ($n=1$ (1.4%) versus $n=182$ (52.5%), $p<0.0001$), but there was no difference in NSAID or csDMARD intake between groups until the 4-year visit. After multivariate analysis, the variables that remained associated with 5-year DF remission were lower symptom duration (OR[95%CI]=0.58[0.36-0.88], $p=0.01$), lower baseline ASDAS-CRP (OR[95%CI]=0.50[0.32-0.76], $p=0.002$) or NSAIDs score (OR[95%CI]=0.54[0.34-0.81], $p=0.004$) and not initiating an anti-TNF during the 5 years of follow-up (OR[95%CI]=0.029[0.00-0.14], $p=0.0005$).

Conclusion: DF remission is rare, 5 years after onset of axSpA. Patients with longer symptom duration, higher baseline ASDAS-CRP and NSAIDs scores were less often in DF remission, while imaging and biological data did not predict DF remission.

Disclosure of Interests: Adeline Ruyssen-Witrand Grant/research support from: Abbvie, Pfizer, Consultant of: Abbvie, BMS, Lilly, Mylan, Novartis, Pfizer, Sandoz, Sanofi-Genzyme, Vanessa Rousseau: None declared, Agnès Sommet: None declared, Philippe Goupille Grant/research support from: AbbVie, Amgen, Biogen, BMS, Celgene, Chugai, Lilly, Janssen, Medac, MSD France, Nordic Pharma, Novartis, Pfizer, Sanofi and UCB, Consultant of: AbbVie, Amgen, Biogen, BMS, Celgene, Chugai, Lilly, Janssen, Medac, MSD France, Nordic Pharma, Novartis, Pfizer, Sanofi and UCB, Speakers bureau: AbbVie, Amgen, Biogen, BMS, Celgene, Chugai, Lilly, Janssen, Medac, MSD France, Nordic Pharma, Novartis, Pfizer, Sanofi and UCB, Yannick Degboe: None declared, Arnaud Constantin: None declared

DOI: 10.1136/annrheumdis-2020-eular.3222

OP0315

WHICH RESPONSE OR STATUS CRITERION DISCRIMINATES BEST IN AXSPA?

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Background: Response criteria and disease activity status used to assess treatment efficacy in axial spondyloarthritis (axSpA) are: the ASAS response criteria (ASAS20; 40; 5/6 and partial remission - PR), BASDAI50 and ASDAS-based criteria (clinically important/major improvement -CII/MI; low disease activity/inactive disease -LDA/ID). These outcomes are variably used in RCTs testing biological (b) and targeted-synthetic (ts)DMARDs. However, it remains unknown which are the most discriminative.

Objectives: To compare the ability of different criteria to discriminate between the response to active treatment and placebo in axSpA.

Methods: A systematic literature review was performed in Medline and Embase to identify RCTs of b- and tsDMARDs. Placebo-controlled RCTs meeting the primary endpoint were included provided they reported ≥ 2 response/status criteria. Outcomes were collected at the timepoint of primary endpoint assessment (PEA). Risk of bias was evaluated by The Cochrane tool. Meta-analysis with the Mantel-Haenszel method was conducted to calculate the Chi-square (χ^2) between percentages of patients fulfilling each criterion in the treatment arm versus the placebo arm (higher χ^2 , better discrimination). Comparisons among criteria were conducted evaluating their performances across RCTs reporting the exact same outcomes at the PEA. Different sets of RCTs were used for the comparisons depending on the available outcomes (Table).

Results: 29 RCTs fulfilled inclusion criteria. In total, 23/29 RCTs with PEA at 12, 14 or 16 weeks, all at a low risk of bias, could be considered for meta-analysis. Other 6 RCTs had later (e.g 24 weeks) or earlier (e.g. 6 weeks) PEA. Out of the 23 RCTs, only 16 reported at least a minimum set of ASAS20, -40, -PR and BASDAI50 (Table, Set 1): discriminative performances for ASAS40 were >ASAS20>BASDAI50>ASAS-PR. In 11/16 RCTs ASAS5/6 was also included (Table, Set 2): this criterion showed the best performances among ASAS-based response criteria. 8/16 RCTs additionally included some ASDAS-based criteria (Table, Set 3): ASDAS-CII and -MI showed a much higher discrimination compared to the ASAS-based criteria. In only 3 trials could all criteria be compared, with the ASDAS-CII and -MI appearing as the most discriminative criteria, followed by ASAS 5/6 (Table, Set 4).