density (BMD) and T-scores in patients with rheumatoid arthritis (RA), compared to a control group.

Methods: We enrolled 150 menopausal women, 75 diagnosed with RA and 75 age matched controls. The controls were selected considering the lack of both an inflammatory disease and history of corticotherapy.

All patients in the study group were under monotherapy with a conventional synthetic DMARD and they are or have been under corticotherapy during the evolution of RA.

The BMD and T score were evaluated using a quantitative ultrasound Echolight machine. There were two evaluators for both lots, on order to minimise the inter-observer variability.

Results:

Abstract AB1214 – Table 1

	Study group	Control group
Age distribution (years)	63,24 ⁴⁹ – 85	64,19 ⁴¹ – 85
Menopause age (years)	46,9 (34–60)	45,78 ³⁰ – 55
BMI (kg/m ²)	25.97 (15.63–34.86)	26.83 (18.36–33.67)
Period since dg of RA (years)	7.26 (5–12.5)	–

13% of the patients in the study group were under corticotherapy at the moment they were recruited in the study and 87% were treated with cortisone before, at some point during the evolution of RA. The average dose followed for more than 2 weeks was 8.8 (5–15) mg prednisone/day. The average corticotherapy period of 2.6 (0.5–14) months.

For the lumbar vertebrae (L1–L4), the average T score in the study group was –1.81, while the control group had a T score of –1.11. For the femoral neck, the average T score for both hips was –1.73 for the study group and –1.04 for the controls.

The spine average BMD was 0.92 g/cm² in the study group, compared to 1.16 g/cm² in the control group. For the femoral neck, the study group average BMD was 0.72 g/cm², while in the control group it was 0.94 g/cm².

Conclusions: The differences between the two groups were significant, but still in the osteopenia interval. The significance of these results translates into an increased fracture risk and a longer treatment duration in the study group.

At this point, this is a preliminary study, but we plan to continue it by comparing these results to DXA results for the same patients, in order to evaluate the cost-effective superiority of this portable, radiation-free technique, in a screening programme.

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AB1215

MINIMAL INVASIVE ULTRASOUND-GUIDED PAROTID GLAND BIOPSY IN CADAVERS DONE BY RHEUMATOLOGISTS

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Background: In daily practice, surgical biopsy of minor salivary glands is routinely performed for the diagnosis of Sjögren's syndrome. The classification criteria for Sjögren's syndrome imply specific positive labial salivary gland biopsy findings. Surgical biopsies of the minor labial glands may result in up to 6% of patients in various complications, e.g. numbness of the lower lip. On the other hand, adverse events following core needle biopsies of the parotid gland in non-rheumatological settings were reported as very rare. Even so parotid gland biopsies require a more demanding surgical expertise mainly to protect the facial nerve.

Objectives: The objective of this study was to assess the feasibility and to determine the presence of parotid gland tissue in minimally invasive ultrasound-guided

parotid gland biopsies in cadavers performed by rheumatologists using histology as a gold standard.

Methods: Two senior rheumatologists obtained under direct ultrasound visualisation in in-plane technique biopsies of 8 parotid glands from 4 different cadavers using a core biopsy needle (core biopsy needle 18G). One biopsy per gland was taken and was subsequently stored. The direction of the bioptic access is shown in Figure 1. The specimen underwent histological examination by an experienced pathologist.

Results: All histological exams showed typical parotid gland tissue. Notably, no facial nerve tissue or major vessels could be detected in the biopsy material.

Abstract AB1215 – Figure 1

Conclusions: In this cadaveric feasibility study, we demonstrated that minimally invasive ultrasound guided parotid core biopsy is a highly precise and easy method to obtain salivary gland tissue.

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AB1216

QUANTITATIVE EVALUATION OF THERAPEUTIC CHANGES IN DIGITAL PSORIATIC ARTHRITIS WITH CONTRAST ENHANCED DUAL ENERGY COMPUTED TOMOGRAPHY IODINE MAP

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Background: Dual Energy Computed Tomography (DECT) iodine map is highly sensitive in depicting the inflammatory changes of psoriatic arthritis (PsA). A modified PsA Magnetic Resonance Imaging Scoring System (mPsAMRIS) was developed to assess the severity of PsA on DECT iodine map^{1,2,3}. DECT iodine map also enables the calculation of iodine uptake in the lesion, which provides a more direct measure of disease activity⁴. However, the usefulness of DECT in evaluating the therapeutic effect of PsA by using iodine quantification, is still undetermined.

Objectives: To assess the validity of DECT iodine map in evaluating the therapeutic effect of PsA by iodine quantification.

Methods: The study included symptomatic PsA patients who underwent two consecutive contrast-enhanced DECT of hand or foot, prior and post medical intervention. All images were independently evaluated by two radiologists. Each symptomatic joint and matched non-symptomatic control joint were scored with mPsAMRIS. To measure the iodine uptake, the region of interest was selected at the level where the joint was most affected. The treatment effect of mPsAMRIS and iodine uptake was calculated by subtracting the results of the matched non-symptomatic joints.

Results: The demographics and clinical characteristics of enrolled patients are shown below.

Abstract AB1216 – Table 1

Demographic and patient Characteristics			
Characteristic	All patients	Men	Women
Number of patients	26	17	9
Mean age (yr)	50.6 (22–89)	54.2 (25–89)	45.2 (22–68)
Mean psoriasis duration (yr)	13.1 (0–41)	12.3 (0.5–35)	14.1 (0–41)
Mean current joint symptom duration (mo)	26.9 (1–192)	40.3 (1–192)	4.5 (1–120)
Fulfilled CASPAR criteria	26	17	9
Mean interval between two DECTs (mo)	7.0 (4–12)	7 (4–12)	6.4 (4–11)

Inter-reader agreement for mPsAMRIS was moderate or sufficient (weighted $\kappa(w)=0.57$ for pre-treatment; weighted $\kappa(w)=0.70$ for post-treatment, respectively). Inter-reader agreement for iodine quantification for pre- and post-treatment showed significant correlation (Spearman's $\rho=0.93$ $p<0.005$, Spearman's $\rho=0.95$ $p<0.005$, respectively).

Both mPsAMRIS and iodine uptake showed significant improvement after treatment for both readers (Wilcoxon signed-rank test: $z=7.37$, $z=5.98$ for reader 1, $z=7.38$, $z=6.20$ for reader 2, $p<0.005$ for all z).

The treatment effect of mPsAMRIS and iodine uptake showed significant correlation (Spearman's $\rho=0.56$ $p<0.005$ for reader 1, Spearman's $\rho=0.57$ $p<0.005$ for reader 2). Graph shows the correlation between change of mPsAMRIS score and iodine uptake.

Abstract AB1216 – Figure 1

Conclusions: A significant improvement of inflammatory changes in PsA was confirmed by iodine uptake post-treatment, which was in-keeping with mPsAMRIS, and there was a strong correlation between the mPsAMRIS scoring system and iodine quantification. Therefore, iodine quantification may be useful in evaluating the treatment effect of PsA. Furthermore, changes in iodine uptake were observed even with small changes of mPsAMRIS, thus iodine uptake may provide a more sensitive and detailed measure of inflammatory activity in PsA.

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AB1217 FLUOROMETRIC IMAGING FOR EARLY DIAGNOSIS AND PROGNOSIS OF RHEUMATOID ARTHRITIS

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Background: Early diagnosis and monitoring of disease progress are of significant importance in the effective treatment of rheumatoid arthritis (RA), because the continuing inflammation can lead to irreversible joint damage and systemic complications. However, using imaging modalities for the prognosis of RA remains challenging, because no tissue-specific guidelines are available to monitor the progressive course of RA

Objectives: We report fluorometric imaging of RA for early diagnosis and prognosis, using structure-inherent targeting of the blood vessel, bone, and cartilage

Methods: we conducted dual channel near-infrared (NIR) fluorescence imaging, by using NIR light in the wavelength range of 700–800 nm and NIR fluorophores, to monitor the pathophysiologic processes of RA. In RA mice, we intravenously injected two NIR fluorophores—indocyanine green (ICG, 800 nm) and DEX700 (700 nm)—that have the characteristics of vascular perfusion agents in order to identify the severity of joint inflammation and the corresponding changes, on the

basis of differences in fluorescence intensity. In addition, for monitoring the changes in cartilage and bone on the basis of the progression of arthritis, we also intravenously injected C700-OMe (700 nm), a cartilage-targeting NIR fluorophore with an affinity for hyaluronic acid and glycosaminoglycan and P800SO3 (800 nm), a bone-targeting agent that has a strong binding affinity for bone minerals such as hydroxyapatite and calcium phosphate.

Results: In the acute inflammatory stage of arthritis, ICG with a lower molecular weight showed a significantly higher signal-to-background ratio (SBR) than DEX700 ($p<0.05$). But, in the chronic inflammatory stage, DEX700 showed a higher SBR value than ICG ($p<0.05$). The changing tendency of SBR value obtained from ICG showed similar to those of the clinical arthritis score in RA mice. In the fluorescence images of the mouse cartilage with C700-OMe before arthritis induction, very clear and distinct lines were observed in the fore paw and ankle joints. In the images obtained after arthritis was induced, these lines were lost, indicating cartilage destruction due to the progression of arthritis. A fluorescence image of the bone was obtained 24 hour after the injection of P800SO3; in this image, it was difficult to view the bone shape of joints especially in the fore paw before arthritis induction, because of a very low fluorescence intensity, in contrast to the cartilage. However, with the progression of arthritis, the fluorescence image of the bones was dramatically appeared and the SBR value of them increased significantly to clearly display the altered morphology of the joints ($p<0.05$). In particular, as it was confirmed that bone-specific NIR fluorophore, P800SO3 went only into the osteoclast cells, it was determined that monitoring of bone remodelling caused by arthritis-induced osteoclastogenesis is possible by using NIR fluorescence images.

Conclusions: The fluorometric imaging of RA by using tissue-specific contrast agents plays a key role in the systemic treatment of RA by monitoring structural damage and disease progression

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AB1218 DIAGNOSIS OF PRIMARY RAYNAUD'S PHENOMENON AND CAPILLAROSCOPY

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Background: Raynaud's phenomenon (RP) is a clinical expression of recurrent reversible vasospasm of small peripheral arteries and arterioles. It is a common pathology in clinical practice and is classified into two main categories – primary RP in the absence of an underlying disorder and secondary RP that is in the context of another disease. The differential diagnosis is of crucial importance for the practising rheumatologists because the patients with primary RP are with benign course while those with secondary RP require further differentiation and establishment of the precise diagnosis and treatment. Differentiation between primary and secondary RP is based on clinical features, laboratory including immunological investigations and capillaroscopic findings.

Objectives: The nailfold capillaroscopy is a key imaging tool for monitoring the RP patients because of the high predictive value of the abnormal capillaroscopic pattern for future development of connective tissue disease. Patients with primary