Background: Adults with rheumatic diseases are a COVID-19 vulnerable population with potential increased risk for severe infection. COVID-19 vaccines are a key strategy to ending the pandemic. Unfortunately, fears about vaccines, some of which are propagated by misinformation, are common and may prevent or inappropriately delay vaccination. *Refusal or uncertainty to get a vaccine despite its availability* is known as vaccine hesitancy.

Objectives: This study aims at defining causes of COVID-19 vaccine hesitancy among rheumatology patients.

Methods: Between November and December 2020, a cross-sectional survey was completed by rheumatology patients presenting to a large Canadian tertiary-care center for influenza immunization. COVID-19 risk factors, previous COVID-19 infection, the likelihood of getting a future COVID-19 vaccine (scale 0-10), and contextual, individual, and vaccine-specific potential determinants of vaccine hesitancy were assessed. Patients were classified into 5 groups based on how likely they were to get a future COVID-19 vaccine (0= not likely at all; 2.5= unlikely; 5= intermediate; 7.5= likely; 10= highly likely). A machine learning approach (XgBoost) was used to fit univariate models for a multi-class correlation.

Results: 157 rheumatology patients completed the survey. Most were females (n=112, 71%) with a mean age of 54.6 (standard deviation 17.9). The majority (73%) had tertiary-education, and 46% were employed at the time of the survey. The most common rheumatology diagnoses were rheumatoid arthritis (n=90, 58%), systemic lupus erythematosus/vasculitis (n=41, 26%) and spondyloarthropathies (n=39, 25%). Most patients were on immunosuppressors (n=93, 59%). Only half (n=85, 54%) were highly likely to accept a future COVID vaccine, 17% (n=26) likely, 19% (n=30) intermediate, 6% (n=10) unlikely, and 4% (n=6) not likely at all. One hundred thirty-five patients (86%) previously received the flu vaccine, whereas 6% (n=10) previously rejected it. Only three patients were previously diagnosed with COVID-19 (2%) one of whom was hospitalized. Eighty-seven patients (56%) considered that the COVID-19 vaccine should be mandatory, and 101 (65%) that they should receive it. Most respondents were somewhat concerned about receiving a future COVID-19 vaccine (n=116, 76%) despite that 65% believed that vaccines benefits outweighed their risks. Almost all, (n=145, 96%) believed that governmental decisions about vaccines are in the best interest of the population, while less than half (n=70, 45%) were confident that pharmaceutical companies would provide safe and effective vaccines. One hundred participants (65%) denied feeling social pressure to get the vaccine, and 55% (n=81) were willing to pay for the vaccine. Feeling social pressure about getting a COVID-19 vaccine, having severe concerns about receiving a future COVID-19 vaccine, distrust in pharmaceutical companies, lower education, and doubts of whether vaccines benefits outweigh their risks, were negatively associated with COVID vaccine acceptance.

Conclusion: Forty six percent of rheumatology patients being immunized against influenza showed at least some hesitancy towards COVID-19 vaccination. Multiple contextual, individual, and vaccine-related factors may contribute. Targeted educational strategies, including producing and communicating data on vaccine safety, may help promote vaccine uptake in this potentially vulnerable population.

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Spine, mechanical musculoskeletal problems, local soft tissue disorders

POS1269

THE UTILITY OF ULTRASOUND TO PREDICT PATIENT OUTCOMES IN SHOULDER PAIN: A PROSPECTIVE OBSERVATIONAL STUDY OF 500 PATIENTS

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Background: Shoulder pain is common and persistent, with a large socio-economic burden. Ultrasound (US) scans are used for diagnosing and managing shoulder pain, but the extent to which it informs management and improves outcomes is unknown. A recent retrospective study identified groups with different patterns of US pathologies.

Objectives: To confirm the existence of US-based groups of shoulder pain and determine if US-detected pathology (grouped or individual) predicts outcomes in the context of usual care. Response to local steroid injection was also evaluated.

Methods: This was a 6 month, prospective, single centred, community based, observational cohort study. Inclusion: shoulder pain, ≥18 years, first shoulder US. Exclusion: shoulder surgery, inflammatory arthritis, steroid/physiotherapy in prior 6 weeks. Standardised reporting for 10 US pathologies was employed. Latent

class analysis (LCA) identified pathology-based groups. Multiple linear regression analysis explored associations between baseline pathologies, subsequent treatment and 6-month Shoulder Pain and Disability Index (SPADI). Growth mixture modelling (GMM) identified groups with common trajectories of change.

Results: Of 500 patients (mean age 53.6; 52% female), 330 completed follow-up. LCA identified 4 groups: bursitis without acromioclavicular joint degeneration (ACJD) (group 1), bursitis with ACJD (group 2), rotator cuff tear (group 3), no bursitis/tear (group 4). SPADI was higher at baseline for tears (55.1 vs. 49.7-51.3) (overall p=0.005), but groups did not differ at 6 months (p=0.379) (Table 1). No individual pathologies predicted 6-month outcomes. Response to baseline injection at week 2 did not differ between groups (p=0.423). GMM found 4 trajectories; the majority of patients followed trajectory 1 (little change), irrespective of US pathology group (79%, 77%, 87%, 70% of US groups 1-4 respectively) (Figure 1).

Conclusion: This is the largest prospective study involving US of symptomatic shoulders, and the first to investigate groups with distinct patterns of US pathologies in predicting outcome. US-based classification of pathology (as groups or individually) did not predict 6-month outcomes with current treatments and there were no differences in short-term response to steroids between groups. The role of routine diagnostic US for shoulder pain needs consideration; it may be useful if evidence-based therapies for specific pathologies are established.

Table 1. Predictors of SPADI score at 6 months

Baseline characteristic	Coefficient* (95% CI), p-value
Pathology group:Bursitis w/o ACJ degeneration (group 1)	Reference
Bursitis with ACJ degeneration (group 2)	0.08 (-5.15, 5.32), p=0.975
RC tear (group 3)	5.01 (-1.48, 11.50), p=0.130
No bursitis, no RC tear (group 4)	1.98 (-4.00, 7.96), p=0.516
Injection at scan	4.87 (0.40, 9.34), p=0.033
Age, years	-0.01 (-0.17, 0.15), p=0.898
Female	-1.51 (-5.42, 2.40), p=0.448
Symptom duration, months	0.00 (-0.04, 0.05), p=0.879
Uses arms to rise from chair	2.65 (-1.50, 6.81), p=0.210
Physiotherapy before baseline	-0.23 (-4.78, 4.31), p=0.920
1 injection before baseline	2.35 (-2.87, 7.56), p=0.377
≥2 injections before baseline	6.53 (-2.50, 15.57), p=0.156
Total SPADI	0.62 (0.35, 0.89), p<0.001
Shoulder activity score	-0.59 (-1.15, -0.04), p=0.037
P-SEQ score	-0.20 (-0.46, 0.07), p=0.141
Brief IPQ score	0.19 (-0.16, 0.54), p=0.298
HADS score	0.01 (-0.38, 0.41), p=0.947
Constant**	35.44 (29.50, 41.38), p<0.001

*Interpreted as unit difference in Rasch-transformed SPADI score per 1 additional unit of the independent variable **Estimated SPADI at 26 weeks in patients in the reference category for all categorical variables and with mean values for continuous covariates. ACJ=acromioclavicular joint; HADS=hospital anxiety and depression scale; IPQ=illness perception questionnaire; P-SEQ=pain self-efficacy questionnaire; RC=rotator cuff; SPADI=shoulder pain and disability index

Figure 1. Trajectories of total SPADI over time by the pathology groups found and response to injections

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POS1270

MUSCULOSKELETAL MANIFESTATIONS IN A COHORT OF 234 INFLAMMATORY BOWEL DISEASE PATIENTS

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Background: Musculoskeletal symptoms represent the most common extraintestinal manifestations of inflammatory bowel disease (IBD) and a major cause of impaired quality of life in these patients. Spondyloarthritis (SpA) is classically associated with IBD, but other rheumatic manifestations may occur.

Objectives: To characterize musculoskeletal symptoms and rheumatic diseases in an IBD cohort.

Methods: Retrospective monocentric descriptive study including all the patients with IBD consecutively referred from Gastroenterology to the Rheumatology Department between January of 2013 and December 2020 in a tertiary university hospital. Demographic and clinical data and musculoskeletal symptoms were collected at the time of the first visit in the Rheumatology outpatient center and the rheumatic diseases diagnosed during the entire follow-up were registered.

Results: A total of 234 patients were included, 136 (58.1%) females, 20 (8.5%) smokers. At the first Rheumatology consultation the mean age was 43.6 (± 13.7) years and the mean IBD duration was 11.7 (± 9.7) years. Concerning IBD: 172 (73.5%) had Crohn's disease and 62 (26.5%) had ulcerative colitis; azathioprine (39.7%), infliximab (28.2%) and mesalazine (26.5%) were the most frequently used drugs; eleven patients (4.7%) were taking glucocorticoids and 106 (45.3%) had already been treated with glucocorticoids.

Regarding musculoskeletal symptoms: 76 (32.5%) patients had peripheral symptoms and 98 (41.9%) had axial symptoms (Table 1).

Table 1. Characterization of peripheral and axial musculoskeletal symptoms in patients with Inflammatory Bowel Disease.

		N (%)
Peripheral symptoms	No	158 (67.5%)
	Arthritis / "inflammatory" joint pain	24 (10.3%)
	"Mixed" rhythm joint pain	15 (6.4%)
	"Mechanical" joint pain	29 (12.4%)
	Enthesopathy	8 (3.4%)
Axial symptoms	No	136 (58.1%)
	"Inflammatory" back pain	46 (19.7%)
	"Mixed" rhythm back pain	35 (14.9%)
	"Mechanical" back pain	17 (7.3%)
Total		234 (100%)

Twenty-six (11.1%) patients had radiographic sacroiliitis, 14 (6.0%) had sacroiliitis in computed tomography and 9 (3.8%) in magnetic resonance. Forty-four (18.8%) patients fulfilled *Assessment of SpondyloArthritis international Society* (ASAS) criteria for axial SpA and 5 (2.1%) for peripheral SpA. Also of note, 16 (6.8%) patients had a previous diagnosis of psoriasis and 5 (2.1%) had uveitis in the past.

Concerning other rheumatic diagnosis, we observed: osteoarthritis in 64 (27.3%), osteoporosis in 16 (6.9%), diffuse idiopathic skeletal hyperostosis in 6 (2.6%), systemic lupus erythematosus in 4 (1.7%), rotator cuff tendinopathy in 2 (0.9%), rheumatoid arthritis, gout, calcium pyrophosphate deposition disease, fibromyalgia, drug-induced lupus, osteitis condensans ilii, Dupuytren's contracture and avascular necrosis of the femoral head in 1 (0.4%), each.

Conclusion: Our results demonstrate a high prevalence of musculoskeletal symptoms and rheumatic diseases in patients with IBD. These diagnoses are not limited to the group of SpA and osteoporosis, emphasizing the importance of rheumatologists being alert to other rheumatic diagnoses in patients with IBD.

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POS1271 PREVALENCE OF JOINT EFFUSION, HYPERPERFUSION AND ENTHESITIS IN YOUNG HEALTHY INDIVIDUALS

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Background: The European League Against Rheumatism (EULAR) recommends using ultrasound (US) in patients with rheumatoid arthritis and psoriatic arthritis in diagnosis (1). In addition, US examination is crucial for detecting enthesitis in the above mentioned rheumatic diseases. However, abnormal findings on US may also occur in healthy individuals as indicated by recent studies focusing on small joints like metacarpophalangeal joint, metatarsophalangeal joint or the elbow. (2,3)

Ultrasound assessment of large joints in healthy individuals has not been extensively studied so far, causing a lack of information concerning normal values in musculoskeletal US examination.

Objectives: The purpose of this study was to determine the prevalence of joint effusion, hyperperfusion of the synovia and enthesitis in large and medium-sized joints of healthy individuals.

Methods: Ultrasound assessment of shoulder, elbow, wrist, hip, knee and ankle joints as well as corresponding enthesal sites including the Achilles tendon and the plantar aponeurosis was performed in healthy individuals below the age of 30 years. Additionally, participants filled out a survey on their physical activity level, underwent a bioelectrical impedance analysis (BIA) and conducted a supervised weight training to determine their training volume. Prevalence of US findings was calculated, and a binary logistic regression model was applied to determine the association between the present findings and sex, age, handedness, hours of sports activity per week, BMI, amount of skeletal muscle mass (SMM) or training volume of strength training.

Results: We included 51 healthy individuals with a mean age of 23.7 years, 52.9% were female with a mean BMI of 22.5 kg/m². Ultrasound examination detected joint effusion in one joint in 25.5% (n=13), 29.4% (n=15) showed effusion in two of twelve examined joints. Joint effusion in three, four and five joints was detected in 9.8% (n=5), 3.9% (n=2) and 3.9% (n=2) of the cases, respectively. In 27.5% (n=14) of the individuals no joint effusion was observed. The most frequently affected joint was the elbow joint. Synovial hyperperfusion was not detected in any participant. Enthesitis was observed in one, two and three examined enthesal sites in 19.5% (n=10), 5.9% (n=3) and 2% (n=1), respectively. In 72% (n=37) of the examined individuals no pathology of the enthesal sites was found. Hyperperfusion presented to be the most frequent pathology observed in enthesitis (23%), followed by calcification (6%).

Binary logistic regression model demonstrated a significant association between reported hours of sports activity per week and the prevalence of effusion in the knee (p = 0.017). The odds of joint effusion in the knee increased with the hours of sports activity by 34.1% (Exp(B)= 1.341, 95%-CI(1.054, 1.705)). Additionally, the odds of enthesitis in any enthesal site increased with BMI (p= 0.015, Exp(B) = 1.407, 95%-CI(1.068, 1.852)).

Binary logistic regression model did not show any significant association between sex, age, handedness, amount of SMM or training volume of strength training and the prevalence of joint effusion or enthesitis pathology in the examined participants.

Conclusion: Joint effusion in large and mid-sized joints as well as enthesitis are not only detected in patients with rheumatic diseases but also in healthy individuals. Hours of sports activity and BMI have a significant association with the findings and should be considered during ultrasound examination.

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POS1272 DIFFERENCES IN RANGE OF MOTION AND MECHANICAL MUSCLE CHARACTERISTICS AMONG INFLAMMATORY AND MECHANICAL SPINAL PAIN: A CASE-CONTROL STUDY

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Background: The spinal range of motion (ROM) and the mechanical muscle properties (MMPs) at rest are defined as relevant clinical factors in inflammatory (i.e. axial Spondyloarthritis -axSpA) and mechanical spinal pain (i.e. Mechanical