subclinical synovitis and tenosynovitis (the latter is recently identified as a strong predictor for RA-development).

Methods: 315 patients with recent-onset (<1 year) arthralgia of small joints and a clinical suspicion for progression to RA were consecutively included in our CSA-cohort. At baseline the squeeze test (compression across the knuckles of MCP- and MTP-joints with the force of a firm handshake) and unilateral contrast-enhanced 1.5T MRI of MCP(2-5)- and MTP(1-5)-joints was performed and scored according to RAMRIS. MRI-scores were dichotomized with data from age-matched symptom-free controls as reference. Follow-up ended when patients developed clinically apparent inflammatory arthritis (IA), or else after 2 years. Associations of the squeeze test and MRI-data were studied with generalized estimating equations, associations with IA-development with cox regression.

Results: 51% of CSA-patients had a positive squeeze test in MCP- or MTP-joints. In univariable analyses a positive test was associated with MRI-detected subclinical synovitis (OR 2.10 (95%CI 1.30-3.40)) and tenosynovitis (OR 1.68 (1.05-2.68)). In multivariable analyses including both inflammatory features only synovitis remained significant (OR 1.90 (1.16-3.13)). Thus, a positive squeeze test is a measure of subclinical synovitis, with a sensitivity of 44% (95%CI 33-55) and specificity of 72% (68-76).

A positive squeeze test in CSA was not associated with IA-development in cox regression adjusted for age, gender, CRP and ACPA-status (HR 1.57 (0.77-3.19)). This was consistent with the finding that subclinical synovitis was not associated with IA-development in multivariable analysis adjusted for age, gender, CRP, ACPA-status and tenosynovitis (HR 1.40 (0.59-3.31)), whilst tenosynovitis was associated (HR 4.94 (2.03-12.06)).

Conclusion: The squeeze test is a simple test that, when positive in CSA, doubles the probability of presence of subclinical synovitis.

Disclosure of Interests: None declared

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Rehabilitation

AB1259

THE IMPACT OF DIFFERENT EXERCISE MODES AND INTENSITIES ON PAIN AND ENJOYMENT IN PEOPLE WITH EARLY RHEUMATOID ARTHRITIS

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Background: The benefits of exercise for people with rheumatoid arthritis (RA) are now widely recognised [1]. However, exercise participation among people with RA remains low. A key reason for that could be the commonly held belief that exercise, may exacerbate disease activity while acutely increasing levels of joint pain. The association of acute exercise with pain has not been established in RA and especially in people with a recent diagnosis.

Objectives: This study investigated the impact of acute aerobic-and resistance-type exercise on perceptions of pain in people with early RA.

Methods: Following local NHS ethical approval, ten people with RA volunteered for the study (Age=46±13years; BMI=29.4±8.6kg/m², RA diagnosis=13±9months, mean±SD). Inclusion criteria were RA diagnosis (2010 EULAR criteria) within the last two years and not engaging in regular physical activity (i.e. no participation in structured exercise >2 times per week). They were assessed for maximal aerobic capacity and maximal strength at chest press, leg press and wide-grip lateral pulldown to determine intensities for exercise conditions. Thereafter they completed one no-exercise control trial (CON) and four exercise trials: 30 minutes of sub-maximal cycling at a workload equivalent to 65% VO₂max (CYCLE); high intensity interval exercise consisting of 10x1 minutes cycling intervals at a workload equivalent to 95% VO₂max (HIIE); resistance exercise consisting of three sets of 12-15 repetitions at 70%1RM (RES-70); resistance exercise consisting of three sets of repetitions to failure at 30%1RM (RES-30). All trials were randomised and separated by a washout period of 3-7 days. Participants completed a visual analogue scale (VAS) for pain at baseline then 2-and 24-hours post exercise; they also completed a questionnaire related to exercise enjoyment 2-and 24-hours post exercise.

Results: Currently four RA participants have completed the study and all participants completed the prescribed exercises in full. Perceived pain was low at 2 hours (0.7±0.4) and 24 hours post-exercise (1.2±0.8) for all exercise conditions (see table 1). Importantly, a difference in heart rate between the aerobic conditions (heart rate during HIIE was 16% higher than during CYCLE), and a difference in workload between the resistance conditions (RES-30 was 117% higher than RES-70) did not result in a difference in pain perception. One participant reported increased pain at 24 hours (7cm vs 1cm at 2 hours) post RES-30, but

claimed that this was purely muscular and not joint pain. Interestingly, all participants enjoyed the exercises with comparable high results across the exercise conditions (see table 1).

Table 1 Pain and Enjoyment Descriptives

Trial	Baseline VAS pain (cm)	2-hour VAS pain (cm)	24-hour VAS pain (cm)	2-hour exercise enjoyment (1-119)	24-hour exercise enjoyment (1-119)
CON	0.1±0.3	0.1±0.3	0.3±0.3	63.8±13.0	63.8±13.0
CYCLE	0.1±0.3	0.5±0.4	0.9±1.2	86.8±11.0	88.0±8.8
HIIE	0.1±0.3	1.3±1.9	1.1±1.7	85.0±27.8	88.3±19.1
RES-70	0.1±0.3	0.4±0.4	0.5±0.4	91.3±13.0	88.3±6.6
RES-30	0.1±0.3	0.4±0.5	2.4±3.1	88.5±17.1	85.0±13.1

(mean±SD)

Conclusion: This study identified minimal exercise effect on perceived pain at 2 hours-and 24 hours-post exercise among participants with early RA. This suggests that exercise did not exacerbate pain and importantly, high intensities and high loads did not cause additional pain. Nevertheless, further larger studies are required to examine the role of acute exercise on disease activity, e.g. inflammation, and the association with perceived pain in people with early RA.

References:

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AB1260

ARE THERMAL CURE AND REHABILITATION EFFECTIVE FOR RELIEVING LOW BACK PAIN? RESULTS OF A RANDOMIZED CONTROLLED TRIAL

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Background: Low back pain (LBP) is a major health problem around the world. It affects almost 80% of the population. Patient with LBP suffer from a heavy pain which is associated to long time incapacity. Different methods of treatment are applied in the objective of reducing pain and thus improving functional capacities of patients.

Objectives: Our study aimed to compare the benefits, with regard to LBP symptoms, of a thermal cure and a rehabilitation treatment.

Methods: It is a randomized therapeutic trial including patients with LBP, randomly divided into two groups: thermal cure and physical rehabilitation. Both of them were conducted in the same spa center of Djbal El Ouest. Outcome measures were visual analogic scale of pain (VAS), Oswestry Disability Index (ODI), Short Form-36 (SF36) questionnaire and schober test. Evaluation was carried out at day 18, 3 months, 6 months and 12 months following treatment.

Results: Seventy-four patients were included, divided into 2 groups: thermal group (n=37) and dry rehabilitation group (n=37). Seventy patients performed the full treatment.

In the group of patients treated with thermal cure treatment (n=37), a significant improvement of VAS of pain, ODI and SF 36 was noted in day 18, 3 months, 6 months and 12 months (Table 1).

Table 1. Tendencies of the clinical indexes after treatment by thermal cure

	D0 (n=37)	D18 (n=37)	3months (n=35)	6months (n=32)	12months (n=36)
VAS ± SD	68,2 ± 16,2	35,8 ± 26,5	55 ± 19	60,2 ± 18,1	56,1 ± 19
P		0,000	0,000	0,008	0,002
ODI ± SD	38,3 ± 14,1	29 ± 17,5	32 ± 14,1	30,2 ± 14,1	28,5 ± 13,6
P		0,03	0,03	0,07	0,000
SF 36 physical mean score ± SD	34,4 ± 14,3	64,2 ± 18	45,9 ± 19	50 ± 21,8	47,9 ± 18,5
P		0,000	0,000	0,000	0,001
SF36 mental mean score ± SD	38,9 ± 16,3	71 ± 21,6	55,1 ± 20,4	56,4 ± 19,9	52,2 ± 20,8
P		0,000	0,000	0,000	0,000
Schober test ± SD	3,1 ± 1,3	3,5 ± 1,3	2,8 ± 1	3 ± 1,1	3,2 ± 1,5
P		0,037	0,322	0,812	0,657

VAS: visual analog scale; ODI: Oswestry Disability Index; SF36: short form 36

In the group of patients treated with physical rehabilitation (n=33), a significant improvement of the VAS of pain and of the physical mean score of SF36 was noted only on day 18 (Table 2). A significant improvement of the mental mean score of SF 36 was noted on day 18 and 6 months (Table 2).

Table 2. Tendencies of the clinical indexes after treatment by physical rehabilitation

	D0 (n=37)	D18 (n=33)	3 months (n=28)	6 months (n=29)	12 months (n=25)
VAS ± SD	64 ± 19,5	47,4 ± 24,6	55,7 ± 18,1	50,5 ± 27,5	62,2 ± 22,2
P		0,002	0,091	0,057	0,567
ODI ± SD	34,3 ± 12,3	31,1 ± 17,3	31,9 ± 15,6	30,3 ± 18,8	31,1 ± 12
P		0,268	0,258	0,296	0,150
SF 36 physical mean score ± SD	38,1 ± 16,1	53,8 ± 22	42,6 ± 16,4	45,1 ± 18,7	42,6 ± 16,2
P		0,002	0,284	0,202	0,185
SF36 mental mean score ± SD	39,3 ± 17,5	61,6 ± 23,5	45,1 ± 18,9	49,6 ± 24,6	46,9 ± 22,1
P		0,000	0,130	0,033	0,09
Schober test ± SD	3,2 ± 1,4	3,5 ± 1,3	3,4 ± 1,4	2,7 ± 1,2	2,9 ± 1,3
P		0,845	0,983	0,091	0,346

VAS: visual analog scale; ODI: Oswestry Disability Index; SF36: short form 36

Comparison of the two types of tested treatments showed a certain number of statistically significant differences. The VAS and physical mean score of SF 36 at day 18 and mental mean score of SF-36 at 3 months were significantly lower on the thermal cure group, while schober test at 3 months was significantly lower in the physical rehabilitation group.

Conclusion: Our study suggests a superiority of thermal cure in relieving pain and improving quality of life at short term among patient with LBP and a comparable efficacy in improving lumbar spine function. However, the effectiveness of physical rehabilitation was greater on spine mobility.

Disclosure of Interests: None declared

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AB1261 DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL OF PULSED ELECTROMAGNETIC FIELD THERAPY IN KNEE OSTEOARTHRITIS (PRELIMINARY RESULTS)

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Background: Pulsed electromagnetic field (PEMF) therapy is widely used in different areas of medicine. There are a lot of portable PEMF therapeutic devices on the market around the world. Nevertheless, the role of PEMF in treatment of rheumatic conditions is not clear. Current evidence is of low and very low quality.

Objectives: To study efficacy and safety of PEMF therapy in primary and secondary osteoarthritis (OA) of the knee in controlled clinical trial.

Methods: This abstract presents the preliminary results of an ongoing double-blind placebo-controlled trial of PEMF portable therapeutic device "ALMAG+" (Certificate EN ISO 13485:2012+AC:2012 reg.-No 44221 117836, Yelatma Instrument-Making Enterprise, Russian Federation, Reg. Num.: 3007075140). The device is intended for physiotherapeutic treatment and rehabilitation with a low-frequency low-intensity PEMF in medical institutions, as well as at home after the recommendation of a doctor. Patients with primary and secondary (as a part of inflammatory rheumatic disease) OA of knee with Kellgren-Lawrence Grade I-III included in the study (in patients with inflammatory conditions disease activity should be minimal on stable drug therapy). Three courses of PEMF of 20 procedures for 1 year planned in active treatment group and placebo (inactive device) group of 35 patients each. Efficacy is evaluated by pain VAS, WOMAC, Lequesne index, and quality of life studied using SF-36, EuroQoL 5D tools. Instrumental control with knee ultrasound and MRI investigations will be performed. The study protocol was approved by local Ethical Committee.

Results: To date 23 patients (7 males, 16 females, age 54,6±11,2 years, primary knee OA – 16 pts, RA- 6 pts, AS – 1 pt) completed 1st course of PEMF. Table presents differences (Δ) in the main clinical parameters in active treatment and placebo device groups. No significant difference in ESR or CRP levels was found. No treatment-related adverse events has been reported.

Table. Differences (Δ) in the main clinical parameters after a 1st course of PEMF.

Parameter	Active device (n=11)	Placebo device (n=12)	p
Δ VAS pain in movement	15 [0; 38,5]	5 [1,25; 10,5]	0,053
Δ VAS pain in rest	10 [0; 34]	1 [0; 2,75]	0,043
Δ WOMAC	3 [2; 10]	2 [0; 4,5]	0,174
Δ Lequesne index	3 [0; 4]	1 [0,25; 2,5]	0,258

Conclusion: In this preliminary analysis pulsed electromagnetic field (PEMF) therapy showed significant impact on pain in rest in knee OA after one course of procedures.

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Disclosure of Interests: Dmitry Karateev Consultant of: Abbvie, Pfizer, Biocad, Sanofi, Novartis, Lilly, Speakers bureau: Abbvie, Roche, Pfizer, Biocad, MSD, Sanofi, Johnson & Johnson, Glaxo, UCB, Celgene, Novartis, Lilly, Bayer, Alexandra Makevnina Speakers bureau: Sanofi, Aminat Tangieva: None declared, Elena Luchikhina Consultant of: Abbvie, Biocad, Sanofi, Celgene, Speakers bureau: Abbvie, Roche, Pfizer, Biocad, MSD, Sanofi, Johnson & Johnson, Glaxo, UCB, Celgene, Novartis, Hava Hamhoeva: None declared

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AB1262 EFFECTS OF TAI CHI EXERCISE ON PAIN, FUNCTIONAL STATUS AND QUALITY OF LIFE IN PEOPLE WITH OSTEOARTHRITIS AND INFLAMMATORY ARTHRITIS

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Background: Tai Chi as a type of physical activity (PA) is included in recommendations for PA in people with inflammatory arthritis (IA) and osteoarthritis (OA).¹

Objectives: The aim of this study was to evaluate the effect of Tai Chi exercise program on pain, functional status and quality of life in people with OA and IA.

Methods: A study co-funded by the Erasmus + European Union Program for Sporting Activities called #WushuElixir was conducted in Croatia, Slovenia, Belgium and Spain. We present the results of the research conducted in Croatia from October 2018 to April 2019. A total of 44 participants (Pts) entered the Tai Chi exercise program. Majority of Pts were female with OA (Table 1). Tai Chi exercise program was performed for 60 minutes, twice a week, with a total of 50 training sessions. In data analysis where included only those Pts who completed at least 36% of exercise program, a total of 28 (63.6%) Pts, out of which 24 (85.7%) completed at least 70% of exercise program. An average attendance was 39 (78%) sessions. Outcome measures were: pain (VAS scale), stability and balance (Functional reach test; FRT), chest mobility (breathing index), spinal mobility (cervical and thoracic sagittal indices and Schober's test), muscle strength (Wall sit test), physical function (Lequesne Index of severity for OA of the hip, and Stanford Health Assessment Questionnaire (HAQ) 20-Item for IA) and quality of life (15D® The health-related quality of life instrument; 15D QL). For statistical analysis t-test for paired samples was used with statistical significance set on P<0.05.

Table 1. Descriptive statistics of participants

		N	%
Gender	Male	4	14.3%
	Female	24	85.7%
Age groups	≤45 years	3	10.7%
	46-60 years	9	32.1%
	61-70 years	11	39.3%
	≥71 years	5	17.9%
		5	17.9%
Diagnosis	Osteoarthritis of the spine, hip and knee	19	67.9%
	Inflammatory arthritis	5	17.9%
	Other	4	14.3%

Results: There was significant improvement in breathing index (P<0.001), sagittal mobility of cervical (P<0.001) and thoracic spine (P=0.007), Schober's