

Methods: 38 patients with RA were randomly assigned to either intermittent aerobic exercise training; 3 session/week for 6 weeks; intervention group (n=17) or usual care (controls group n=21). The primary outcome was change in polysomnography (PSG) assessed sleep efficiency while secondary outcomes included sleep (Pittsburgh Sleep Quality Index), fatigue (Bristol Rheumatoid Arthritis Fatigue Multi-Dimensional Questionnaire) and depression (The Center for Epidemiological Studies-Depression).

Results: Sleep efficiency improved significantly in the intervention group from baseline 0.84 (95% CI 0.80-0.87) to end of the intervention 0.88 (95% CI 0.84-0.92) $p=0.03$, while for the control group the mean change was not significant. No between-group difference in change was observed. Fatigue was significantly reduced in the intervention group compared to the control group -16.0 (95%CI -25.1 - -7.04), including physical fatigue -4.99 (95%CI -7.25 - -2.74), cognitive fatigue -2.43 (95%CI -4.22 - -0.63) and living with fatigue -2.50 (95%CI -4.45- -0.54).

	Baseline		Post-intervention		Within-group change			Between-group difference		
	Estimate	95%CI	Estimate	95%CI	Estimate	95%CI	P-value	Estimate	95%CI	P-value
Sleep efficiency (PSG)										
IG	0.84	0.80-0.87	0.88	0.84-0.92	0.04	0.00-0.07	0.03	0.04	-0.02-0.08	0.16
CG	0.88	0.84-0.91	0.88	0.85-0.92	0.01	-0.03-0.04	0.77			
Global PSQI score										
IG	7.40	5.57-9.23	6.72	5.01-8.42	-0.68	-2.40-1.03	0.41			
CG	7.31	5.55-9.06	7.48	5.83-9.12	0.17	-1.52-1.86	0.83	-0.85	-3.27-1.56	0.46
Physical fatigue										
IG	14.27	11.5-16.9	10.8	8.20-13.5	-3.38	-5.03--1.74	0.0002			
CG	10.95	8.53-13.3	12.5	10.1-15.0	1.60	0.06-3.15	0.04	-4.99	-7.25--2.74	0.0001
Living with fatigue										
IG	5.88	4.27-7.49	3.11	1.50-4.72	-2.76	-4.17--1.35	0.0003			
CG	4.47	3.02-5.92	4.21	2.69-5.73	-0.26	-1.61--1.08	0.69	-2.50	-4.45--0.54	0.01
Cognitive fatigue										
IG	5.41	3.92-6.89	3.58	2.10-5.07	-1.82	-3.11--0.53	0.007			
CG	4.14	2.80-5.48	4.74	3.24-6.15	0.60	-0.63-1.84	0.32	-2.43	-4.22--0.63	0.009
Emotional fatigue										
IG	3.29	2.18-4.39	2.0	0.89-3.10	-1.29	-2.20--0.38	0.006			
CG	2.52	1.53-3.51	2.3	1.25-3.33	-0.22	-1.09-0.64	0.59	-1.06	-2.32-0.19	0.09
Depression										
IG	13.7	10.0-17.4	10.7	7.2-14.3	-2.99	-6.83-0.85	0.12			
CG	8.6	5.2-12.1	12.4	8.5-16.2	3.75	-0.38-7.90	0.07	-6.75	-12.4--1.1	0.02

IG=intervention group; CG=control group

Conclusion: An intermittent aerobic exercise intervention presented no statistically significant effect on sleep efficiency in patients with RA compared with usual care. However, significant between-group differences were seen in subjectively reported fatigue including physical fatigue and cognitive fatigue and on depressive symptoms.

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FRI0702-HPR NON PHARMACOLOGICAL MANAGEMENT OF FIBROMYALGIA: A SYSTEMATIC REVIEW OF SYSTEMATIC REVIEWS

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Background: Despite the number of guidelines and available therapies, many individuals with fibromyalgia (FM) still experience significant pain and a reduced quality of life. Patient heterogeneity and clinical uncertainty can lead to delays in selecting the most appropriate management strategy. There are more than 300,000 publications surrounding the management of FM, thus affecting clinicians' ability to make informed decisions. The systematic review of randomised controlled trials is the gold standard in evaluating an intervention. However, the increase in systematic reviews

(SRs) has led to some questions regarding their quality. Therefore there is a need to synthesise the evidence with an overview of SRs.

Objectives: To evaluate the quality of the current evidence from SRs on the effects of non-pharmacological interventions for the management of FM.

Methods: A systematic search of seven databases (1990-2018) was completed to identify SRs reporting the effects of non-pharmacological interventions on the primary outcomes of pain, function and quality of life (QoL). Data was extracted according to the PICO framework in addition to intervention prescription where appropriate. Methodological quality was assessed using the Assessing the Methodological Quality of Systematic Reviews (AMSTAR-2) instrument (Shea et al 2017).

Results: Twenty-six SRs with 243 primary studies met the inclusion criteria. Reviews were classified into 6 categories (1) land-based exercise; (2) water-based exercise; (3) mind-body; (4) electrotherapy; (5) manual therapy and (6) complementary and alternative medicine (CAM). Quality of the included SRs were variable with many interventions scoring low to critically low. High quality evidence was found to support the use of land-based exercise and mind-body therapies for the improvement of pain, function and QoL (Table). In particular aerobic exercise with or without strength training and mind-body therapies demonstrated the best outcome.

Conclusion: With the exception of land-based exercise and mind-body exercise, the quality of evidence for the non-pharmacological management of FM is mostly poor, with more than half of the included reviews scoring low or critically low on the AMSTAR-2 instrument. Improved reporting of outcome data and stricter methodological quality will allow stronger recommendations in the future.

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Table: Quality of reviews surrounding interventions on FM

	Results*	Quality of evidence
Land-based exercise (3)	Pain*/function*/QoL*	High
Water-based exercise (5)	Pain*/function*	Moderate
Mind-body therapies (4)	Pain*/QoL*	High
Electrotherapies (8)	Pain*/QoL*	Low
Manual therapy (3)	Pain*	Critically Low
CAM (3)	Pain*	Low

* + = positive effects, ? = no or unclear results

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FRI0703-HPR INVESTIGATION OF THE EFFECTIVENESS OF AEROBIC EXERCISE TRAINING IN INDIVIDUALS WITH ANKYLOSING SPONDYLITIS: RANDOMIZED CONTROLLED STUDY

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Background: Aerobic capacity is a measure of the functional capacity of the oxygen system and the cardiopulmonary system. In Ankylosing spondylitis (AS) patients, aerobic capacity is lower than healthy peers, and this is due to inflammation, muscle atrophy and peripheral muscle weakness, fatigue, low physical activity level, negatively affected respiratory function, peripheral arthritis, decreasing chest expansion and respiratory muscle strength.

Objectives: The aim of the study was to investigate the effects of aerobic exercise training on functional status and aerobic capacity in individuals with AS.

Methods: Twenty-eight voluntary individuals diagnosed with AS according to Modified New York Criteria who applied to Pamukkale University Department of Internal Medicine, Department of Rheumatology were included in the study. Individuals were randomly divided into two groups, as there would be aerobic exercise training (n=17; mean age=46.58 ±11.94years) and supervised exercises group (n=11; mean age=42.54 ±8.75years). All assessments were done before and after the training.

After the demographic characteristics and disease related data of the individuals were recorded; for the functional status, the Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Metrology Index (BASMI) were used. Six-minute walk test(6MWT) was used for the assessment of aerobic capacity. Group I was attended 40 min aerobic exercises sessions (5-min warm up, 30-min treadmill, 5-min cool down), plus supervised spinal mobility exercises and Group II was attended only supervised spinal mobility exercises per day, 3 times a week, for 12 weeks. Data were analysed Wilcoxon and Mann Whitney U Test.

Results: After training aerobic exercise group, BASMI ($p=.021$), BASDAI ($p=.002$) and 6MWT($p=.036$) results were statistically significant, while the difference was not significant in BASFI ($p=.068$). It was observed that there was no significant difference in the after training period in the supervised exercises group. BASDAI, in group aerobic exercise group had improved more significantly when compared to supervised exercises group.

Conclusion: As a result of the study, it was noted that when aerobic exercise training applied together with the supervised exercises in ankylosing spondylitis patients, effectiveness on mainly disease activity, spinal mobility and aerobic capacity was increased. Key words: Ankylosing spondylitis, aerobic exercise training, supervised exercised.

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FRI0704-HPR THE EFFECTS OF CLINICAL PILATES TRAINING IN PATIENTS WITH FIBROMYALGIA: A RANDOMIZED CONTROLLED TRIAL

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Background: Fibromyalgia (FM) is a chronic condition characterized by widespread pain, sleep disorders, fatigue and reduced quality of life. Exercise is commonly recommended in the approach of people with FM. Researches support some forms of exercises reduce fibromyalgia symptoms and improve quality of life. Pilates recently has become popular form of exercise which focused core strengthening, posture and coordination of breathing with movement. Studies showed that clinical pilates can be used to provide improvements in patients with FM. However there is no study which compared clinical pilates-based supervised exercises and group exercises on FM patients in literature.

Objectives: The first aim of the study was to investigate the effects of clinical pilates training, secondly to compare the effects of supervised exercises and group exercises training on disease activity, functional status, anxiety, quality of life and biopsychosocial status in individuals with FM.

Methods: 42 voluntary women diagnosed with FM according to 2010 American College of Rheumatology Criteria in the age range of 35-65, who applied to Pamukkale University Department of Internal Medicine, Department of Rheumatology were included in the study. Individuals were randomly divided into two groups, as there would be supervised exercises (Group I, $n=16$, mean age 55.93 ± 8.03) and group exercises (Group II, $n=26$, mean age 47.80 ± 5.87). All participants attended 60-min exercises sessions (10-min warm up, 40-min clinical pilates exercises, 10-min cool down) per day, 2 times a week, for 6 weeks. The training was applied by same physiotherapist who received clinical pilates certificate by an experienced Pilates instructor and physiotherapist. After the demographic characteristics and disease related data of the individuals were recorded; disease activity were assessed with the Fibromyalgia Impact Questionnaire (FIQ), functional status with Health Assessment Questionnaire (HAQ), anxiety with Beck Anxiety Inventory (BAI), quality of life with Short Form 36 (SF-36) scale and biopsychosocial status with the Cognitive Exercise Therapy Approach Scale (BETY). All outcomes were assessed just before and 6 weeks after training. The data were statistically evaluated by the Wilcoxon test and Mann-Whitney Test.

Results: There were no significant differences in baseline demographics between the Group I and Group II ($p>0.05$). After 6 weeks, showed for both groups a statistically significant improvement in FIQ, SF-36 (physical and mental component) and BETY also Group II showed a statistically

significant improvement in HAQ and BAI ($p<0.05$). When both group were compared, a significant difference was observed in FIQ ($p<0.05$) in Group II, whereas no statistical differences were found in other outcomes ($p>0.05$)

Conclusion: This study showed that clinical pilates training which were applied 6 weeks, resulted in improvement on disease activity, functional status, anxiety, quality of life and biopsychosocial status in individuals with FM. Besides group exercises training provides social interaction so we suggest clinical pilates as an effective and safe method for people with FM.

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FRI0705-HPR THE RELATIONSHIP BETWEEN SELF-REPORTED PAIN EXPERIENCE AND FUNCTIONALITY IN PATIENTS WITH JUVENILE SCLERODERMA

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Background: Juvenile scleroderma (JS) is a rarely seen chronic connective tissue disorder characterized by inflammation and fibrosis of the skin. Pain and functionality is a widely neglected symptom in patients with JS, even though it may be common and have a significant impact on the quality of life. Clinical trials and small treatment studies suggest that pain is significant in scleroderma, but few data speak of the frequency or presence and experience of pain and the relationship between self-reported pain and functionality.

Objectives: This study aimed to determine whether the presence of pain (based on physical conditions and participants' report) and self-reported pain experience in children with JS differ from same gender population controls.

Methods: 30 patients (26 girls, 4 boys) with JS between the ages of 6-18 years and 30 healthy controls (20 girls, 10 boys) with similar age and gender were included in our study. The follow-up form was prepared considering the relevant parameters such as socio-demographic status of JS disease. Self-reported presence and experience of pain were assessed in rest, during a physical activity and after or during an exercise. Children rated their pain severity on a six-item Wong-Baker Pain Scale (WBS:0-10) from none to worst. The location, spread and character of the pain were asked (flammable, sinking, squeezing, restlessness, tingling, throbbing, tingling, electric shock etc.). Children completed their functional ability status with "Childhood Health Assessment Questionnaire (CHAQ)" and "Jebson Taylor Hand Function Test (JTHFT)".

Results: The mean age of the JS group was 14.06 ± 3.24 years (86% female, 14% male; while the%53 localized scleroderma,%47 SSc). Compared with controls, more JS participants, who indicated pain and comprehended self-reporting scales, reported higher pain affect and intensity pain and/or discomfort with activity and with exercise ($p<0.05$, 47% vs $p<0.05$, 57%), but fewer JS participants reported pain at the test ($p<0.05$, 3.3%). 40% of the patients described the character of the pain as sneezing, 7% had throbbing, 7% had tingling, 3% had flammable, and 3% had a smear. The rest of 40% population had no pain. There was a significant correlation between pain at rest and CHAQ-Total scores ($r=0.576$; $p=0.001$). There was no significant relationship between pain during activity or exercise and JTHFT and CHAQ-Total ($p>0.05$).

Conclusion: In our study, only a significant relationship was found between pain at rest and functionality. These findings indicate that pain is common in JS and that pain is significant determinants of physical