Supplement 5. Interventions described using the TIDieR checklist¹. The interventions are described as they were reported in the studies.

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Alexanderson , et al. ² ; 2014; SSc	Intensive aerobic exercise and muscle endurance training program	Improvement in the six minute walk test (6MWT)	Aerobic exercise on a stationary bike and muscular endurance training of the shoulder flexors and the hip flexors; exercised three times a week under supervision aerobic exercise: 10-minute warm-up biking session at an intensity corresponding to perceived light exertion (10 on the Borg RPE, 6–20 scale), afterward, the load increased to 15 on the Borg RPE scale for 15 minutes; last five minutes loads were reduced to light exertion; first week, only the 10-minute warmup exercise; following week 5 minutes were added with an intensity corresponding to somewhat exerting (13 on the Borg RPE scale); remaining six weeks, goal intensity corresponding to perceived heavy exertion (15 on the Borg RPE scale) for a maximum of 30 minutes. After biking exercises repetitive dynamic muscle resistance training: As many shoulder flexion repetitions as possible in a sitting position without back support with a 1-kg weight cuff around the wrist, and in hip flexion, lifting one leg at a time while lying in a supine position. The numbers of repetitions were based on the results of the FI-2 tests for these muscle groups. If participants at some point during the exercise period performed the maximal number of repetitions (60) of shoulder flexion, a heavier cuff was attached to the wrist to increase the load. In case of performing maximal repetitions of hip flexion, a weight cuff of 0.5 – 1.0 kg was attached to the ankle. Every other week, the numbers of repetitions were adapted according to the results of every other week systematic assessments. During the first two weeks, patients performed at the 0-week assessment and then gradually increased to perform the maximal number of repetitions at each exercise session.	Physiotherapist	Exercise adapted to the patient's condition	To enhance compliance, participants were given the choice to exercise at home or at a gym twice a week and once a week under supervision at the hospital.

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Allaire, et al. ³ ; 2005; SLE	Job retention intervention	Prevent job loss	Job retention intervention based on Roessler and Rumrill's theory about the relationship between workplace barriers and job satisfaction Setting: 2 Meetings, lasting 1.5 hours; additional time was available if desired. Content: (a) identification of work barriers and solutions, (b) vocational counseling and guidance, and (c) education and self-advocacy. a) Identified barriers were prioritized, the counselor suggested potential solutions and discussed their feasibility with participants, plan of action was developed b) Counselors conveyed positive messages about a participant's ability to work, individual's long-term job—person match was evaluated in light of the impact of his or her rheumatic disease; possible job alternatives, requirements, and relevant resources were identified so the individual could begin the process of changing job or career. c) Counselors provided information about disability-related employment legal rights and responsibilities, also conducted a skill training exercise to increase ability to request a job accommodation in an appropriate manner; copies of pamphlets and flyers about how to manage health-related employment problems and available resources were given and discussed.	Rehabilitation counselors	Tailored to the needs of the patient.	No information.
Antonioli, et al. ⁴ ; 2009; SSc	Individualized rehabilitation program	To increase functioning, quality of life, impaired health and perceived QOL in airways disease, skin score	Ten individual sessions of 30 min, each session included warm-up and cool-down exercises, training of motor functions, and respiratory exercises (diaphragmatic breathing and controlled coughing). Lower extremity exercises: combination of treadmill and free-walking Upper-extremity exercises: combination of finger-stretching and occupational therapy In addition, if needed: physical therapy for patients with particular problems, transcutaneous electrical nerve stimulation, magnetic fields therapy, laser therapy, radar therapy, extracorporeal shock waves, and ultrasound immersion therapy.	Occupational therapist, physiotherapist	Individual program, individual sessions, changes in intervention if needed	At each visit, they were asked for compliance with the home- treatment program.

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Attia ⁵ , 2014, SSc	Physiotherapy	Improve cervical dysfunction	At-home exercise on days when the program was terminated. 3 times per week for one month Active Range of Motion Activities. Aerobic Conditioning: Upper Body Ergometer. Client Education. Home Exercise Program. Joint Mobilization Techniques. Manual Therapy Techniques. Modalities: As Needed. Neuromuscular Re-education. Self- Care/Home Management. Soft Tissue Mobilization Techniques. Stretching/Flexibility Activities. Therapeutic Exercise.	Physiotherapist	Interventions during the course of treatment will be directed toward addressing the problems and achieving the goals previously outlined	No information.
Austin, et al. ⁶ ; 1996; SLE	Telephone intervention strategies; treatment counseling (TC); symptom monitoring (SM); both interventions were expected to be effective	Improve health outcomes (fatigue, physical dysfunction, psychological affect)	TC: targeted 6 patient behaviors: selfcare activities in managing fatigue, patient's communication skills, removing barriers to medical care, medication self-management, symptom monitoring, and stress control methods; intervention consisted of coaching strategies to empower the patient for proper physician-patient-communication, and to achieve desired goals. SM: question and answer format emphasizing a review of function that consisted of fatigue, physical function, self-care activities, social activity, support from family, flare-ups, joint pain, mood, and tension.	Trained counsellor (TC), trained stuff member (SM)	Individual coaching and counselling (TC)	Medication adherence was discussed (TC group).
Avaux, et al. ⁷ ; 2016; SLE	Supervised training (ST) compared to home training (HT)	Improve fatigue	Patients were asked to exercise 3 h per week during 12 weeks. The training consisted of (i): Endurance exercises (walking or bicycle) with the aim of achieving between 60 and 80% of the theoretical maximal heart rate; and (ii): Strenghtening exercises (with elastoband or weights for both upper and lower limbs); at the beginning multidisciplinary information session about the benefits of exercise in SLE, during which practical information was also delivered; two groups differed by the level of supervision (ST under supervision; HT exercised at home on their own).	Multidisciplinary team	The intensity of the exercise sessions was set individually at the HR of the patient.	Compliance was similar and low (±50%) in both exercise groups

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Ball ⁸ ; 2010; SLE	Fascial Release Therapy (FRT) and structural integration (SI)	1) Reducing pain, stiffness, fatigue, anxiety. 2) Enhancing functional mobility, autonomy, quality of life, emotional state, autonomic and immune function.	FRT and SI Aim: Through manual manipulation and movement re-education, they aim to restore 'tensegrity' - integrity of length, symmetry, balance, and equal tension in all planes between the fascial 'guy ropes' pulling, and hence applying compressive forces on, the skeletal structure, about its vertical axis. Setting: Session duration was 1 h except for the initial consultation (75 min), and timings were determined by best clinical judgment in correlation with mutual availability. Case 1: eight treatments were provided over a fourteen-week span. Case 2: four treatments in seven weeks, plus three treatments in five weeks some two months later due to patient's interim overseas trip.	Physiotherapist	Tailored to the needs of the patient.	No information.
Benatti, et al. ⁹ ; 2014; SLE	Exercise training program	Impfove lipid profile; composition of high-density lipoprotein (HDL) HDL2 and HDL3	Twice a week; consisted of seven strength exercises for the major muscle groups (4 sets of 8–12 repetitions maximum for each exercise). Following 30 min of aerobic exercise on a treadmill at the corresponding heart rate between the ventilatory anaerobic threshold (VAT) and 10 % below the respiratory compensation point (RCP).	No information.	At the corresponding heart rate.	No information.
Berdal, et al. ¹⁰ ; 2018; SLE	Structured Goal Planning and Supportive Telephone Follow- up	Improve health- related quality of life (HRQoL)	The add-on program comprised a self-management booklet, motivational interviewing in structured individualized goal planning, and 4 supportive follow-up phone calls after discharge. It comprised 4 components: 1) a self-management booklet based on cognitive behavioural theory, 2) two semi structured goal-setting conversations in which patient-specific rehabilitation goals were developed by individual patients and health care professionals on admission and discharge, 3) telephone follow-up after discharge to support patients in their efforts to reach their goals, and 4) motivational interviewing systematically employed by the health professionals throughout the goalsetting procedures and the follow-up phone calls. More details are displayed in the article.	Health care professionals (physician, physiotherapist, occupational therapist, nurse)	Individually tailored to patient's needs.	Adherence was measured with checklists.

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Bogdanovic, et al. ¹¹ ; 2015; SLE	Different types of physical activity	Improve quality of life	Aerobic training: on a bicycle ergometer for 15 minutes, 3 times a week for 6 weeks. Isotonic exercises: for 30 minutes, 3 times a week for 6 weeks. Muscle strength and flexibility were combined with a focus on concentration, balance, breathing and relaxation. Training has the objective of building up strength in the entire body with an emphasis on the abdominal and the back muscles.	No information.	No tailoring.	No information.
Boström, et al. ¹² ; 2016; SLE	Physical activity programme	To increase the aerobic capacity	The programme was organized into two periods, months 0–3 (more supervised); and months 4–12 (less supervised). Period 0-3: education, supervised aerobic exercise (2/week, 60 minutes, aerobic exercises [20 min], muscle strength/ endurance training [15 min]), individual coaching of physical activity (30 min after 6 and 12 weeks), loan and use of heart rate monitor and the use of a physical activity diary Period 4-9: individual coaching of physical activity (30 min after 6 and 9 months), use of heart rate monitor and the use of the physical activity diary Period 9-12: only use of the heart rate monitor and the use of the physical activity diary	Physiotherapist	Individual coaching of physical activity and activity goals	No information
Braden, et al. ¹³ ; 1993; SLE	Systemic Lupus Erythematosus Self-Help Course	To improve psychosocial concerns	Seven weekly 21/2-hour sessions for groups of 8-18 adults of all ages: teaches coping skills, conveys information, provides support, and fosters problem solving, cognitive reframing, decision making, and efficacy enhancement.	lay instructors and health or mental health professional	Standardized workshop	No information
Broadbent, et al. ¹⁴ ; 2014; SSc	Nintendo Wii Fit exercises	Improve functional capacity, exercise tolerance, strength and balance	Three 30-minute sessions of Wii Fit exercises per week for 12 weeks. The exercises included step aerobics, marching and interactive games to develop balance, weight transfer and upper and lower body strength. Following games were chosen: Step Basic, Rhythm Parade, Ski Slalom (beginner), Ski Slalom (advanced), Balance Bubble (beginer), Balance Bubble Plus, Table Tilt (beginner), Penguin Slide, Tightrope Tension (beginner), Tilt City (beginner)	Each session was supervised by a clinical exercise physiologist and/or member of the research team.	Single case study – Intervention was designed for the patient.	The participant completed 30 of the 36 sessions (82% compliance), the 'fun factor' appeared to contribute to programme compliance.

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Brown ¹⁵ ; 2010; SSc	Role of the nurse specialist in the management of digital ulcers	Helping patients to deal with the physical, psychological and social effects associated with digital ulcers.	Burden of digital ulcers: consultations with the nurse specialist (one-to-one support and education), referral to other specialists such as occupational therapist (for function or work-related issues) or a podiatrist for assistance with the management of foot ulcers; encouraging to join a support group or attend a group educational session and patients should also be given an advice-line number to call for support between visits. Prevention of further digital ulcers: encouraged to keep and record information in a diary when their ulcers develop, education to understand the disease process, advice about reduction of exposure to cold, avoidance of emotional stress and cessation of tobacco use, and advice on effective skin care. Patients need to be aware of the danger of infection. Wound care for digital ulcers: keep the digital ulcer area as clean as possible, dressings need to be removed every one to two days to inspect the wound for signs of infection and to clean and re-dress the ulcer to prevent infection.	Nurse	n.a.	n.a.
Brown, et al. ¹⁶ ; 2012; SLE	Cognitive behavioral therapy OR Education only	To manage pain, enhance disease adjustment and adaptation, increase quality of life	Cognitive-Behavioral Therapy (CBT) Setting: over 6 weeks, each 45 min Content: CBT included coping skills training and cognitive restructuring techniques. Coping skills training: enhancing existing skills, teaching new skills to manage stressors associated with SLE, training in relaxation, distraction, and problem-solving skills. Restructuring exercises: focus on negative cognitions and evaluative responses to stressful situations in daily life, negative perceptions of physical appearance, and negative responses to pain. Education-Only Aim: understanding their disease would help patients manage the disease more appropriately. Setting: 45-minute long modules on a laptop.	Therapists	Content was tailored to the needs of the people.	Telephoned the participants in the week between sessions one and two, sessions two and three, and during the week immediately following the third session to monitor treatment adherence,

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			Content: first session focused on the impact of SLE on daily functioning at home and at school, second session, held during the third week, focused on issues pertaining to healthy living (e.g., maintaining a balanced diet, exercise, and appropriate sleep hygiene), third session, conducted during the fifth week, reviewed the material that had been taught up to that point. In addition, two 10–15 minute telephone contacts during the week between the first and second sessions, the second and third sessions, and the week immediately following the third session to review the instructional materials.			answer any questions about the module, and ensure compliance with treatment homework.
Carrera, et al. ¹⁷ ; Soriano- Maldonado, et al. ¹⁸ ; 2019; SLE	12-week aerobic exercise intervention	Improve arterial stiffness	Two 75-min sessions per week during a total of 12 weeks (i.e., 24 sessions) of moderate to vigorous intensity aerobic exercise on a treadmill; All the sessions began with a warm-up comprising 3–4 min of activation on the treadmill at about 35–40% of the heart rate reserve (HRR) and 3–4 min of active stretching of major muscle groups, and ended with a cool down phase of static stretching of major muscle groups and relaxation. During month 2, there were alternated continuous and interval sessions, and at month 3, the patients undertook interval training sessions, where there were periods of lower and periods of higher intensity efforts followed some minutes of rest for hydration. More detailed description is displayed in the article.	Exercise professionals, physicians	Intervention was tailored to the patient's physical condition.	Adherence to exercise is reported as the median attendance frequency and the proportion of patients attending more as 75% and more as 90% of the sessions.
Carrier, et al. ¹⁹ ; 2020; SSc	Scleroderma Patient-Centered Intervention Network Self- Management Program (SPIN-SELF)	Increase self- efficacy	The SPIN-SELF program utilizes social modeling through educational videos of patients with SSc, as well as videos of health professionals; the nine modules focus on (1) coping with pain; (2) skincare, finger ulcers and Raynaud's; (3) sleep problems; (4) fatigue; (5) gastrointestinal symptoms; (6) itch; (7) managing emotions and stress; (8) coping with body image concerns due to disfigurement; and (9) effective communication with health care providers.	Web based	Intervention was tailored to the patient's needs (participants can select the modules in the order that they prefer).	No information.
Carrier, et al. ²⁰ ; 2018; SSc	Scleroderma patient- centered intervention network hand exercise program (SPIN-HAND)	Improve hand functioning	First 4 weeks focus on exercises 3-5 times per week; graduates from 3-4 minutes in week 1, 5-15 minutes in week 4; week 5, participants are asked to select options to fit their needs (from	Web based	Intervention was tailored to the	internet- based tool to increase

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			5-10 minutes to 30-35 minutes per day). The core of the program consists of four modules that address specific aspects of hand function: (1) Thumb Flexibility and Strength (3 exercises); (2) Finger Bending (3 exercises); (3) Finger Extension (3 exercises); and (4) Wrist Flexibility and Strength (2 exercises).		patient's needs (participants can select the modules in the order that they prefer).	adherence and motivation. Log information are used to detect adherence.
Carvalho, et al. ²¹ ; 2005; SLE	Supervised cardiovascular training	Improve exercise tolerance, aerobic capacity, fatigue, depression, functional capacity, quality of life	Program was conducted 3 times a week for 12 consecutive weeks and was supervised by 2 physiotherapists: 60 minutes in the morning, consisted of 10 minutes of initial warmup/stretching, 40 minutes of walking, and 10 minutes of cooling down; walk was performed at the ventilatory anaerobic threshold.	Physiotherapist	The intensity was set individually at the HR of the patient.	No information.
Clarke- Jenssen, et al. ²² ; 2005; SLE	Supervised aerobic exercise program	To improve pain and fatigue, disease activity, aerobic capacity, physical function	Walking on a treadmill at an intensity of 70% of the patients' maximum heart rate. The heart rate was carefully controlled during all walking sessions; walking at a comfortable self-selected speed (from 3.5–5.5 km/hour). The inclination of the treadmill was adjusted (from 0% to 2%) to achieve the desired heart rate. The exercise period increased gradually during the first 3-week period from 25 to 40 minutes, including 5 minutes for warming up and 5 minutes for cooling down. The program included 3 exercise sessions a week for a total of 12 weeks. The number of exercise sessions performed varied from 24 to 33 out of a possible 36 sessions.	No information.	Tailored to the patient's heart rate, walking at a self-selected speed.	No information
Cunningham, et al. ²³ ; 2018; Cunningham, et al. ²⁴ ; 2019; cSLE	Treatment and education approach for childhood-onset lupus (TEACH)	Increase disease activity, fatigue, psychological distress, pain	6 weekly in-person sessions (60 min); caregivers were invited to attend three of the six sessions. Cognitive behavioral therapy (CBT): psychoeducation for managing physical symptoms, sleep hygiene recommendations, relaxation training, behavioral activation, activity pacing, calming statements, problem solving, and maintenance planning; mindfulness meditation, medication adherence, and	Psychologist	Intervention was tailored to the patient's needs.	Protocol feasibility was assessed by attendance/ completion rates and through themes that emerged

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Daltroy, et al. ²⁵ ; 1995; SLE	Exercise prescription and unsupervised home exercise programme	Improve exercise tolerance, fatigue, depression, helplessness	challenging automatic thoughts, was included during the iterative refinement process 12 week home cardiopulmonary conditioning; Stationary bicycles were provided, patients were asked to exercise three times per week for 30 min, achieving a heart rate of 60-80% of the maximum heart rate achieved on the ETT.	Physiotherapist	The intensity of the exercise sessions was set individually at the HR of the patient.	from the qualitative interviews. Physical therapist or research assistant contacted the patient once a week to update logs of exercise
Dobkin, et al. ²⁶ ; 2002; SLE	Brief Supportive- Expressive Group Psychotherapy	Reducing psychological distress 2) medical symptoms 3) health care costs 4) improving quality of life	Training included materials pertaining to SLE (e.g., medications, common psychosocial challenges); weekly for 12 weeks, each session 90 min, in total of 22.5 hr of patient contact; "Booster sessions" were offered once per month for 3 months (reinforce changes and encourage the transfer of new experiences into daily life); Specific topics: (a) medical status and treatment; (b) doctor—patient relationships; (c) family and social network; (d) group therapy issues (e.g., cohesion, asking for or receiving help from others); (e) illness-related coping skills; (f) illness, dying, and feelings regarding these issues; (g) life values and principles; and (h) self-image; end of each session, a brief self-hypnosis exercise was carried out with the guidance of the therapist. Participants were encouraged to practice it at home in between sessions.	Psychologists, social workers	Order of topics according to the members' needs.	The intervention was designed to prevent symptom exacerbation and improve compliance and coping. Measured by attendancerate.
Doerfler, et al. ²⁷ ; 2017; SSc	Medical nutrition therapy (MNT) intervention	To increase physical activity, health related quality of life	Undernutrition and weight loss - Increase calories by 500— 1000/d through the following strategies: - Increasing frequency of snacks - Layering calories by adding healthy oils and spreads to foods - Preventing missed calories by developing a prescribed pattern of regular eating - Add liquid calories to meals and snacks - Oral enteral supplements (either premade or homemade) based on preferences GI complaints: dysphagia - Modified texture:	Dietitian	Whole intervention was declared as individualized nutrition counseling.	Patients were contacted weekly by phone or email by the dietitian to enhance intervention adherence.

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			 Dysphagia diet modification level identified Drizzling healthy fats to meals for calories and lubrication Consume texture-appropriate liquids to meals to improve food bolus clearance Gastroesophageal reflux disease and esophageal dysmotility Diet and lifestyle modifications: Elevate head of bed when sleeping as directed by gastroenterologist Avoid tightfitting clothing to reduce reflux Remain upright after late-day meals to reduce reflux Small, frequent meals Lower fiber and lower fat foods to improve gastric emptying Rely on gravity for esophageal clearance: pureed foods or liquid meals when symptoms flare Bloating, gas, and constipation - Volume and carbohydrate modified: Increase liquid meals and pureed options for gastroparesis Low FODMAPS diet Lactose- and sugar-modified oral supplements if calories are needed Diarrhea and fecal incontinence Small frequent meals Provide low-lactose fluids and oral rehydration solutions to prevent dehydration Constipation Nutrition management of fluids, fiber, and food volume 			
Drenkard, et al. ²⁸ ; 2020; SLE	Chronic Disease Self- Management Program (CDSMP)	Improvement in quality of life, self-management, disease severity	Chronic Disease Self-Management Program (CDSMP) is a workshop for adults with at least one chronic health condition. It focuses on disease management skills including decision making, problem-solving, and action planning. Key Activities: Interactive educational activities like discussions, brain storming, practice of action-planning and feedback, behavior modeling, problem-solving techniques, and decision making. Also includes symptom management activities like	Lay instructors	Intervention was tailored to the patient's needs.	The study's aim was to evaluate barriers to recruitment and retention of African—American women

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			exercise, relaxation, communication, healthy eating, medication management, and managing fatigue. Setting: Community/ Group-based workshop. Suggested class size: Between 10 and 16 participants. Duration: Participants meet for two hours once a week, for six weeks.			with SLE in this program; major barriers were unpredicted personal and health-related issues, misunderstanding of the scope and benefits of the intervention, and transportation problems. Early implementation of tailored strategies helped to reduce participant barriers and achieve a CDSMP registration of 168 participants, with 126 (75%) completers. Frequent contact with participants and compensation helped to reach 92.3% retention

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						for the 6-month survey.
Drenkard, et al. ²⁹ ; 2012; SLE	Chronic Disease Self- Management Program (CDSMP)	To increase health status, self- efficacy and self- management behaviors	Setting: six weekly sessions, each lasting 2.5 hours, led by two trained leaders and conducted in a small group (10–15 participants) Content: The CDSMP curriculum addresses depression, anger/fear/frustration and fatigue management, better breathing, exercise, healthy eating, medication management, working with health professionals, and cognitive techniques for relaxation and symptom management.	lay instructors	Individualised program	No information
Edworthy, et al. ³⁰ ; 2003; SLE	Brief supportive- expressive group psychotherapy	Reduce illness- induced interference with valued activities and interests	Authors refer to Dobkin, et al. ²⁶	Authors refer to Dobkin, et al. ²⁶ .	Authors refer to Dobkin, et al. ²⁶	Authors refer to Dobkin, et al. ²⁶
Everett, et al. ³¹ ; 2015; SLE	Patient-centered nutrition counselling	Improve selection of nutrient; anthropometric and clinical outcomes	Setting: nutrition counselling in form of individual face-to-face initial consultation (60 minutes) and follow-up visits (30 minutes each) over a six-month period; at least once a month over the six-month period. Goal of counselling: reduce total and saturated fat intake, sodium intake, cholesterol intake, and overall calorie intake (for weight management), and to increase omega-3 fatty acid and fiber intake, according to Therapeutic Lifestyle Change (TLC) guidelines. Content: goal-setting; self-monitoring practices (use of food diaries); motivational interviewing (MI); tailored instruction based on stage of change; addressing patients' barriers to making and maintaining diet changes.	Dietitian	Individual face- to-face initial consultation	Attended an average of 3 sessions (range 2–5).
Filippetti, et al. ³² ; 2020; SSc	Home-based minimally supervised exercise program	Improve functional capacity, health related quality of life and disability	Consists of an aerobic exercise on a stationary bike (Energetics ct220p, Neomark Sarl, Luxembourg), muscular endurance training of the upper limb, and stretching exercises for the hands; three times a week. Each session consisted of three phases: (i) Patient pedaled for five minutes without a load; (ii) Patient was instructed to set the	Not reported.	Intervention was tailored to the patient's physical condition.	Patients were asked about their side effects and adherence to the exercise

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			brake at a load of approximately 60% of the watts achieved at the peak of the maximal ergocycle exercise test; two periods of fifteen minutes divided by a recovery of three minutes; (iii) Five minutes of cooldown without a load. Frequency of pedaling higher than 60 rotations/min during the second phase and 50 during the other phases. Upper limbs training, the patients performed two series of 10 repetitions separated by 2 minutes of rest consisting in repeatedly lifting and lowering a weight from the waist to the shoulders. The load was about 60% of the 1-RM. Stretching of the upper limbs, shoulders, and neck was performed after each exercise session. The load for the strength and aerobic exercise was decreased by 20% to allow a gradual muscular adaptation, in the first 2 weeks. After 3 months, the loads were adjusted on the basis of the results of the maximal cardiopulmonary test and of 1-RM. The patients were given written and illustrated instructions for hand stretching, which had to be performed twice daily.			program. The patients were invited to report each type of exercise whether the tasks were partially completed, completed, completed, or not carried out (which corresponded to a score of 1-0.5-0, respectively) on a diary card. The attendance rate at the training session was calculated as the ratio between the scores registered on the diary card within 3 months (1-3, 4-6 months) and the number of scheduled sessions in the same period.

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Freedman, et al. ³³ ; 1984; SSc	1) Autogenic training OR 2) Finger temperature biofeedback OR 3) Frontalis EMG biofeedback	To improve finger temperature (Skin)	First session (pretraining voluntary control): increase temperature of fingers as much as possible using any mental means during a 16-min period Second session (pretraining cold stress): identical to first session, except that the middle phalanx of the middle finger of the dominant side rested for 16-min on a cold stimulus, whose temperature decreased from 30 to 20 degrees at a rate of 1 degree for 10 min and was then maintained at 20 degrees for 6 min. One of three treatments: 10 biweekly training sessions: 10 min of adaptation, a 16-min resting baseline, and 16 rain of feedback or instructions Temperature biofeedback: sinusoidal tone whose pitch varied inversely with the temperature of the middle finger of their dominant hand, subjects were told to increase the temperature of their fingers as much as possible using the tone as a guide. Autogenic training: tape-recorded instructions for 3 min, after which they repeated the phrase "my hands are warm and heavy" for 13 min. EMG biofeedback: sinusoidal tone whose pitch varied directly with the amplitude of their frontalis EMG, which had been rectified and smoothed (time constant = 0.5 sec), the subjects were told to relax all of the muscles in their body as much as possible using the tone as a guide. All were instructed to practice at home the same way.	No information.	No tailoring.	No information.
Greco ³⁴ ; 2015; SLE	Mind-Body Skills Training (MBST)	Reducing depressive Symptoms	In 8 individual sessions (CBT), each lasting approximately one hour, sessions take place on a weekly basis, so that the intervention phase of the study lasts for approximately two months.	No information	No information	No information
Greco, et al. ³⁵ ; 2004; SLE	Stress-reduction program: BF /CBT (biofeedback/cogniti ve bahavioural therapy)	To improve pain, psychological function, physical function	BF /CBT (biofeedback/cognitive bahavioural therapy): standardized 6-session protocol that included auditory electromyographic biofeedback from the trapezius area, progressive muscle relaxation, and cognitive-behavioral pain and stress management training. Cognitive-behavioral training	Licensed psychologist	Individual coaching	No information

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			included problem-solving strategies for coping with pain, other lupus symptoms, and interpersonal issues; the training also included recognition and alteration of automatic maladaptive thinking patterns that can contribute to stress and pain.			
Gregory, et al. ³⁶ ; 2019; SSc	Daily hand exercises with daily home wax bath hand treatment	Improvement in hand function	Set of three finger exercises was combined with paraffin wax bath. The wax bath is heated to 45 to 55 °C participants place their hands in to the wax, up to the wrist level and then remove within a few seconds(Fig.1). This dipping into the wax is repeated 5 o 6 times. The hand is then wrapped in a plastic bag and then a towel to prolong the heating period. The wax layering, bag and towel are then left on for 10 minutes. Participants were asked to perform wax bath treatment to each hand no less than 4 times per week. The three stretches involved (i) push in to full finger flexion, (ii) push in to full finger extension and(iii) a push in to proximal interphalangeal joint extension whilst maintaining distal interphalangeal and metacarpophalangeal joint flexion. Participants were sked o perform these stretch exercises 3 o 10 times per day. he participants in the wax bath group were a sked to perform at least one of these exercise repetitions immediately after their wax bath treatment.	Physiotherapist	No tailoring.	Patient reported Compliance showed 100% compliance in both groups.
Harrison, et al. ³⁷ ; 2005; SLE	MINDFUL (Mastering the Intellectual Navigation of Daily Functioning and Undoing the Limitations of Lupus)	Improve cognitive dysfunction	Intervention combines functional strategy training and psychosocial support based on the theory that basic cognitive strategies can be learned and then generalized or applied for use across different day-to-day situations. This Multicontext approach teaches selfmonitoring techniques to increase awareness of cognitive lapse so that appropriate strategies can be applied to these lapses. The intervention consisted of eight weekly 2-hour sessions led by an occupational therapist.	Occupational therapist	No information.	No information.
Haupt, et al. ³⁸ ; 2005; SLE	Psychological intervention	Improving coping	Groups of up to eight patients, in two blocks over six months each	Rheumatologically qualified physicians together with	General discussion was conducted to	The patients attended an average of 15

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			Psychoeducational interventions: Information on symptoms, course, prognosis, and therapeutic options (two sessions); assessment and handling of the disease (three sessions); development and sustainability of social contacts and competence (three sessions). Psychotherapeutic interventions: directed at identification and management of disease related/disease affecting anxieties (three sessions), coping possibilities concerning fatigue and reduction of initiative and motivation in everyday living (two sessions), with structuring day activities and establishing pleasurable contacts, how to cope with stress and the usual everyday problems under conditions of a continuously present illness (two sessions), Coping with pain (one session).	members of the German Lupus Erythematosus Self Help Group, graduate psychotherapist	enable participants to highlight problems that were still unresolved or remained unmentioned within the previous sessions (one session).	group sessions (minimum 12, maximum 18). Three patients attended fewer than 14 sessions
Herschman, et al. ³⁹ ; 2014; SLE	Mobile app for adolescents with SLE	To improve autonomy; enabling symptom tracking; and facilitating communication with care providers and peers	Project outcomes included the selection of the following features: symptom tracking; appointment and medication reminders; a social media component; a medical summary; easy navigation; informational content; gamification; and personalization (options for customization).	n.a.	n.a.	n.a
Horton, et al. ⁴⁰ ; 1997; SLE	LupusLine (telephone peer counseling service)	Satisfaction on LupusLine	Telephone peer counseling service; to bridge a gap in psychosocial support services for people with systemic lupus erythematosus (SLE) and their family members. Goal: mission of the program is to enhance coping strategies, selfesteem, and health-related behaviors, and to reduce feelings of isolation and anxiety as users struggle with the challenges of living with SLE.	Professionally screened by a social worker, further counselling with peers (trained patients with SLE or family members)	Individual counselling.	No information.
Horváth, et al. ⁴¹ ; 2017; SSc	Hand physical therapy	Improve hand function	Complex physiotherapy program including thermal baths (37-38°C, 30 minutes/day), mud baths of the hands (42°C, 20 minutes/day), whirlpool therapy of the extremities (37-38°C mineral water, 20 minutes/day), medical massages of the trunk	Occupational therapist, physiotherapist	Partly personalized adaption to client's needs.	No information.

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			and the upper extremities (mechanical, stimulating and vasodilator techniques in 30 minutes/occasion), exercise (30 minutes/day, isometric, isotonic and stretching hand exercises; 15 minutes isotonic and stretching exercises for the spine, hip and knee); occupational therapy (30-60 minutes; muscle facilitation, proprioceptive training, improvement of coordination and fine motor skills, practicing self-care tasks if needed).			
Kankaya and Karadakovan ⁴² ; 2020; SLE	Web-based education and counselling	Improve self- efficacy, fatigue, care satisfaction	Education topics included: (i) Information about SLE, including a definition, frequency, causal factors, signs and symptoms, treatment, prognosis and complications; (ii) Management of fever; (iii) Fatigue and rest; (iv) Exercise; (v) The psychological effects of lupus and stress reduction; (vi) Prevention, early identification and management of lupus flares; (vii) Skin care and sun protection; (viii) Nutrition; (ix) Protection of joints; (x) sex and lupus; (xi) Pregnancy, contraception and birth; and (xii) Use of medicines; literacy level was adjusted to primary-school level. Individual consultancy and information updates were made by the researcher according to the questions asked by patients.	Physician, nurse	Intervention was tailored to the patient's needs.	No information.
Karlson, et al. ⁴³ ; 2004; SLE	Psychoeducational Intervention	Improve patient self-efficacy and partner support	30–45-minute discussion between educator, patient, and partner, after a regular visit for medical care, patients chose their own partners, the pair identified the problems they wished to work on, and they came up with their own plans. First aim: The couple was introduced to a problem-solving approach, including problem identification, generation and evaluation of alternative solutions, choosing a solution, and making concrete plans. Second aim: identify discordant patient and partner beliefs about patient self-management abilities, to help them come to a common understanding of the patient's actual abilities and improve their communication about lupus management.	Nurse, partner	Whole intervention is tailored	n.a.
Keramiotou, et al. ⁴⁴ ; 2020; SLE	Individually tailored 30-min daily upper-	Improve hand function	Participants were provided with a booklet including pictures and instructions for the exercise programme and a kit of equipment including a stick, two resistance bands and a plastic container of	Hand therapist	Intervention was tailored to the patient's	In order to enhance adherence,

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	limb exercise programme		4oz, with therapeutic putty of medium soft or medium resistance depending on their strength. Exercise programme was tailored to the strength, pain level and flexibility of the patient. The initial intensity of exercise was set at a moderate level and the programme was reassessed, using a modified Borg Scale, to maintain the same intensity, in every face to face session with the hand therapist at 0, 3, 6 and 9 weeks. Patients in the exercise group received by the hand therapist a 30-min daily programme at home of strengthening and stretching upper limb exercises for 12 weeks, in addition to routine care.		physical condition.	participants were provided with an exercise diary to record completion of the daily exercise programme.
Khanna ⁴⁵ ; 2019; SSc	Internet-based self- management program	Enhancing self- management	The site will be accessed via secured website. The modules will be presented 1-2 per week and will be moderated by a researcher with expertise in moderating Discussion Boards.	Researcher	No information	No information
Khanna, et al. ⁴⁶ ; 2020; SSc	Internet-Based Self- Management Program	Improve self- efficacy	Self-management website, with 1 module focus made available per week; 15 modules included a basic overview, coping and body image, exercise, self-advocacy, pain management, activities of daily living, fatigue and energy conservation, tips for families and caregivers, muscle and lung disease with a focus on African Americans, gastrointestinal tract, Raynaud's disease, sexuality and scleroderma, mouth and teeth care, clinical trials, and emergencies. Two investigators moderated online discussion. Participants were asked to log on to the discussion board at least once weekly.	Web-based	Intervention was tailored to the patient's needs.	Not reported.
Kristensen, et al. ⁴⁷ ; 2019; SSc	Paraffin prior to hand exercises compared to lukewarm water prior to hand exercises	Improvements in hand function	Hands actively warmed up (CG warmed water, 37° Celsius; IG paraffin bath 52° Celsius) Both groups received an individual exercise programme consisting of 12 active range-of-motion exercises for the forearm, the wrist and the fingers, and a few stretching exercises (detailed description see: https://journals.sagepub.com/doi/suppl/10.1177/17589983188 24346). Exercises were selected according to each patient's impairment in hand mobility measured at baseline.	Self-administered (after instruction).	Intervention was tailored to the patient's condition.	All patients followed the treatment allocated, but the frequency of performing the advised number of exercise sessions varied

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			The program was performed twice daily for six months (30 min per exercise session) at home self-administered by the patient.			(average percentage of adherence was 68% (range 13% to 96%) in the water group and 59% (range 17% to 95%) in the paraffin group). No patients were excluded due to low adherence.
Kusnanto, et al. ⁴⁸ ; 2018; SLE	Orem's self-care model	Improve self-care agency, self-care operation and quality of life	education and counselling: 4 h in the self-care management training program (the education part), followed by four weekly home visits of about 30 min each (the counselling part). home visits: patients were asked about SLE symptom recurrence in the previous week and precipitating factors of symptoms, then assessed the self-care activities that had been implemented, the problems that had been encountered, discussed alternative solutions, gave counselling when needed, and made progress notes. The modules were divided into five parts: 1) lupus, 2) physical activity, 3) healthy diet, 4) stress management, and 5) managing SLE symptoms independently.	Nurses	Counselling part was tailored to the patients needs.	No information.
Kwakkenbos, et al. ⁴⁹ ; 2014; SSc	Cognitive- Behavioural Therapy	Reduce emotional distress and concerns about the future	The intervention (in addition to usual care) consisted of an intake interview, 5 sessions that focused on depressive symptoms, 4 sessions that targeted fear of disease progression and a tenth session focused on relapse prevention and evaluation of the intervention.	Psychologist	Tailored cognitive- behavioural therapy	No information.
Kwakkenbos, et al. ⁵⁰ ; 2011; SSc	Group-based psycho-educational programme	Improve disease related cognitions, depressed mood,	Groups of 6 to 10 patients; programme consists of modules of 1.5 hours each, covering 13 different topics, over three weekends: goal setting and evaluation, education about disease characteristics, diagnosis and treatment, education about joint protection and energy conservation, discussing psychosocial	goal setting and evaluation (social worker), education about disease characteristics,	At the start of each session, the participating patients' questions and	No information.

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		physical functioning	aspects of the disease and education about the benefits of exercise and an introduction lesson of Tai Chi. Patients were invited to bring their partner or a significant other person at the first day.	diagnosis and treatment (rheumatologist), education about joint protection and energy conservation (occupational therapist), discussing psychosocial aspects of the disease (psychologist) and education about the benefits of exercise (Physiotherapist).	problems related to that topic are individually assessed to determine the exact content of the session	
Landim, et al. ⁵¹ ; 2019; SSc	Home-based self- management program (Hands on- a hand care guide in SSc)	Improve hand pain and hand function	The program consisted of a booklet (written in simple language) and a DVD with hand exercises. Patients were instructed to practice the exercises daily, as a routine. In case of pain or discomfort when performing any of the exercises, they were advised to stop doing it and to contact the researchers. Content: Recommendations: (1) Managing Raynaud phenomenon, (2) Maintaining well-hydrated skin, (3) Preventing digestive discomfort, (4) Treating dry mouth, (5) Maintaining oral health, (6) Avoiding fatigue, and (7) Physcial activity. Hand exercises: (1) Active finger flexion and extension, (2) Wrist flexion stretch, (3) Wrist extension stretch, (4) Active wrist flexion, (5) Active wrist extension, (6) Active forearm pronation and supination, (7) Finger flexion stretching, (8) Finger extension stretching, (9) Opening of the first commissure, and (10) Active finger pinch.	Self-administered	No tailoring.	Adherence was not determined in the project.
Landim, et al. ⁵² ; 2020; SSc	Home-based self- management programme (same	Same as in Landim, et al. 51	Same as in Landim, et al. 51	Same as in Landim, et al. 51	Same as in Landim, et al. 51	Same as in Landim, et al. 51

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	as in Landim, et al. 51)					
Li, et al. ⁵³ ; 2020; SLE	Physical Activity Counselling Program with Use of Wearable Tracker	Increase time spent in moderate/ vigorous physical activity	8-week intervention included 3 components: 1) an in-person session with 20 minutes (mins) of group education and 30 minutes of individual counselling with a PT. Focus: benefits of being physically active, how to be active without aggravating symptoms, and pain management, PTs guided participants to set goals, develop an action plan, and identify barriers and solutions 2) use of a Fitbit Flex-2 with account access in the company website (tailored to participant's goal, the PT then set the physical activity parameters on FitViz, included 1) the upper and lower bound of intensity and duration, 2) the upper limit of time in continuous sedentary behaviour, and 3) the rest time between sessions3). 3) 4 bi-weekly phone calls (20-30 mins) from a PT, reviewing participants' progress remotely on FitViz and counselled them to modify activity goals.	Physiotherapist	Intervention was tailored to the patient's condition.	Average intervention adherence in the Immediate Group was 98.3% for the education session attendance, 88.1% for the PT phone calls, and 83.1% for Fitbit use (Table 5). 78% met all 3 fidelity criteria.
Maddali- Bongi, et al. ⁵⁴ ; 2011; SSc	Manual lymph drainage (MLD)	Reducing edema, increasing functionality of the hands and quality of life	Manual lymph drainage (Vodder method) Setting: sessions were performed in both upper extremities, starting from the less edematous side, for 60 minutes, once a week for 5 weeks. Content/Structure: first at the "terminus" (the triangular area at the base of the neck, above the clavicles, where the lymph returns to the circulatory system by flowing into the subclavian veins) with light massage strokes, secondly the neck and head lymphatic skin vessels and lymph nodes were massaged; subsequently, the axillary lymph nodes were treated and a light massage was directed from the proximal site of the arm to the wrist, following a centrifugal direction in the upper extremity, with the aim of opening the lymphatic vessels. The treatment was performed by stimulating sequentially the lymphatic vessels of the arm, elbow, forearm, and wrist. This procedure was followed by the treatment of the dorsal and, then, of the palmar side of the hand and fingers. Afterward, the upper extremity	Trained operator	No tailoring	No information

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			was treated in a centripetal direction by massaging the lymph nodes of the wrist, elbow, and axilla, and reaching again to the neck, with the aim of draining the content of the lymphatic vessels into the circulatory system.			
Maddali- Bongi, et al. 55; 2009; SSc	Combination of connective tissue massage and Mc Mennell joint manipulation	Improve hand function	Connective tissue massage and Mc Mennell joint manipulation Setting: 9 weeks, twice a week, 1 h per session and home daily exercises. Connective tissue massage: brief examination of both upper limbs to control the presence of Raynaud phenomenon and ulcers, the treatment starts with the massage of forearm and hand lasting about 10 min per limb. If necessary, after Mc Mennell manipulations, other 5 min of massage can be performed. Mc Mennell joint manipulation: starts with wrist manipulations on frontal and radial side diastasis and continues with the manipulations of the MCP and finally of the interphalangeal joints lasting 15 min per side. Programme of home daily exercises: one session/day (lasting 20 min) of active exercises for the hand, consisting in movements of the fingers and fine movements of the hand like flexion and extension of the single fingers, adduction and abduction of the fingers, terminal and subterminal pinches with all fingers in opposition to thumb, movements of flexion, extension, ulnar and radial deviation of the wrist and pronation and supination of the forearms.	No information.	No tailoring.	No information.
Maddali- Bongi, et al. ⁵⁶ ; 2009; SSc	District specific and global rehabilitation program	Patients' global health condition and their hand and face involvement	9-week rehabilitation program, district specific techniques for hands and face involvement and with a global technique: 1. Hand involvement: combination of connective tissue massage and Mc Mennell joint manipulation (1 hour/session, twice a week). Patients with edematous hands were also treated with supplementary sessions of manual lymphatic drainage (1 hour/session, twice a week). 2. Face involvement: combination of Kabat's method, connective tissue massage and kinesitherapy was used (1 hour/session, twice a week).	Physiotherapist	Individualized for each patient according to clinical characteristics.	No information.

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			3.Global rehabilitation programs: included Hydrokinesytherapy, performed by SSc patients without ulcers. Patients with ulcers were assigned to a land-based rehabilitation. In both cases, patients performed respiratory rehabilitation exercises (1 hour/session, once a week). More detailed description in the article.			
Maddali- Bongi, et al. ⁵⁷ ; 2010; SSc	Combination of Kabat's technique, connective massage and kinesitherapy	Improve mouth- opening, 1) Face	Frequency: 9 weeks twice a week (each session lasting 1 h) combined Sturcture: connective tissue massage first 10 min, Kabat's method 15 min and kinesitherapy 15 min; remaining 20 min relaxing exercise; home program of mimic exercises: patients were instructed to perform daily mouth stretching and opening exercises, and grimacing exercises for mimic muscles; three sequences. First sequence (at least 5 min, 3 times/day): patient placed thumbs into the mouth in order to enlarge the oral angles, movements were done bilaterally and simultaneously. Second sequence (once a day): patient inserted a number (as high as possible) of tongue depressors between the premolars of one arch toward the molars of the contralateral one to properly open the mouth. The tongue depressors should be maintained for a minimum of 8 min and, after a stop, the exercise should be repeated, if possible, for additional 8 min, by increasing the number of tongue depressors (modified from 6 to 12). third sequence: consisted in mimic exercises to be performed once a day, based on a series of grimaces to exercise (oro)facial muscles.	Physiotherapist	No information.	No information.
Maisiak, et al. ⁵⁸ ; 1996; SLE	Telephone-based counselling intervention	Improving psychological status	counselled exclusively by telephone, every 4 to 6 weeks over a 6-month period. The initial counseling session lasted approximately 30 minutes and subsequent sessions lasted 15 to 30 minutes.	Counsellors had a Master's degree in counselling. Counselors had been diagnosed	Content was tailored to the needs of the people.	Some of the specific medically related topics that tended to

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			Goal was to reduce anxiety and depression by helping the clients explore their emotional concerns regarding their illness and recognize blocks to personal growth., counselling tended to be nondirective and reflective, meaning counsellor helped the clients search and find their own solutions. The techniques used: active and passive listening, accurate reflection of thoughts and feelings, clarification, summarization, confrontation, and openended leads.	having RA respectively ankylosing spondylitis as well as other non- rheumatologic chronic diseases.		be discussed were the patient's last visit with the doctor, how to reach the physician, medication compliance, and coping with symptoms.
Mancuso and Poole ⁵⁹ ; 2009; SSc	Paraffin and active hand exercises	Improve activity and participation	Frequency: 20-minute paraffin bath, followed by hand exercises five days per week for eight weeks. Content exercises: flexion of the MCP joints, extension of the PIP joints, and thumb abduction. Participants held each exercise for 3-5 seconds with five repetitions. Participants were given a paraffin unit for use in their homes, and were responsible for completing both interventions.	Occupational therapist	No tailoring	To reinforce the program and answer questions, researchers contacted participants weekly. To monitor compliance, participants were asked to keep a diary of participation. Participants reported 100% compliance with the interventions in their diaries.
Martin ⁶⁰ ; 2009; SSc	Myofascial release (MR)	Improve the functionality of temporomandibul ar joint	Materials: Clinical Physiotherapeutic Assessment form, massage therapy table, camera, standard goniometer, 160mm caliper, and standard measuring tape with cm and mm markings.	Physiotherapist	Intervention was done because her individual needs.	No information.

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McNearney,	Transcutaneous	Improve	How: 20 MR sessions, each lasting 60 min, once a week, 10 sessions focused on neck and head (5), and right upper limb (RUL) (5), particularly the forearm and hand. Nine other sessions focused on the body as a whole, especially the patient's median plane. Then, after a break of 110 days, one session focused again head and RUL. 30 min TENS treatment >10Hz	No information	Amplitude range	Patients filled
et al. ⁶¹ ; 2013; SSc	electrical nerve stimulation (TENS)	neurogastric functioning	at GI acupuncture points PC6 and ST36, once (acute TENS) and then after two weeks of TENS sessions for 30 min twice daily (prolonged TENS); two-channel TENS electrodes applied bilaterally to PC6 and ST36 GI acupoints. First visit: The electrical stimulus consisted of pulse trains; 12/min and 2 sec, respectively and pulses in each train had a frequency of 25 Hz; amplitude range of 2–10 mA, and was based on patient tolerance. At the end of the first visit, patients were trained in the operation of the unit and lead placement of the TENS electrodes for home use Days 2-14: the patients performed TENS at home twice a day for 30 minutes each, preprandially, before breakfast and the evening meal.	No illiorniation	of 2–10 mA, and was based on patient tolerance	out a daily log to report their TENS use and were contacted by phone after the first seven days to confirm their use and correct placement of TENS leads.
Miljeteig and Graue ⁶² ; 2009; SLE	Educational program	Improve pain, fatigue, and quality of life	Education: patients learn about their disease and possible treatment to help them cope with daily living. Information: about the multidisciplinary team and the ways that patients can contribute. Coaching/Counselling: how patients can manage the disease better and achieve better physical and psychosocial health.	Designed with health professionals as moderators (physician, therapist, social worker, or nurse)	Active participation, discussion and coaching from patients	No information.
Mitropoulos, et al. ⁶³ ; Mitropoulos, et al. ⁶⁴ ; 2019; SSC	High-intensity interval training (HIIT) combined with resistance training (RT)	Improve microvascular function	The HIIT protocol was described in Mitropoulos, et al. ⁶⁵ . The RT exercises consisted of 1) chest press with dumbbells on a 30° inclined bench, 2) arms lateral raise with dumbbells in a seated position, 3) biceps curl with dumbbells, 4) triceps extension on the pulley from a standing position and, 5) handgrip dynamometer.	No information	Intervention was tailored to the patient's condition.	We used our 'Six Pillars of Adherence' framework (based upon 'social support',

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						'education', 'reachability', 'small groups intervention implementation ', 'reminders', and 'simplicity') to support patients to adhere to the intervention.
Mitropoulos, et al. ⁶⁵ ; 2018; SSc	High-intensity interval training (cycling and arm cranking)	To improve the microcirculation of the digital area	12-weeks, twice per week; 5 min warm-up on an arm crank or cycle ergometer, a 5 min cool-down period (lower- and upper-limb light intensity aerobic exercise and light stretching). Cycling and Arm cranking: exercise session on a cycle ergometer/an arm crank ergometer, high intensity interval training for 30 minutes (30s 100% PPO/ 30s passive recovery)	No information	Tailored to the patient's condition.	No information
Mouthon and Thombs ⁶⁶ ; 2020; SSc	SPIN-HAND Program	Difference in Cochin Hand Function Scale	Internet-based SPIN-HAND program consists of 4 modules (1) Thumb Flexibility and Strength (3 exercises); (2) Finger Bending (3 exercises); (3) Finger Extension (3 exercises); and (4) Wrist Flexibility and Strength (2 exercises). The program includes sections on developing a personalized program, goal-setting strategies and examples, progress tracking, sharing goals and progress with friends and family, and patient stories of experiences with hand disability and hand exercises. Instructional videos demonstrate and explain how to perform each exercise properly with pictures to illustrate common mistakes. Separate versions of each exercise are available for patients with mild/moderate and more severe hand involvement.	No information	Separate versions of each exercise are available for patients with mild/moderate and more severe hand involvement	No information
Mugii, et al. ⁶⁷ ; 2006; SSc	Self-administered stretching of each finger	Improve functionality	Occupational therapist coached the patients on a home program for stretching, which is a self-administered exercise. Home program for stretching, which is a self-administered exercise: Individual fingers were maintained in a stretched position using the opposite hand for 10 s, and this was repeated	Occupational therapist	No tailoring.	No information.

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			3–10 times. Frequency: once per day. The exercise was performed carefully if aches occurred due to inflammation or skin ulcers. Since self-exercise was difficult for patients with severe contracture restrictions to perform, instructions were given to family members on behalf of the patient instead. The therapist confirmed whether the exercise was correctly performed every month, when the patient visited our hospital for treatment of SSc.			
Mugii, et al. ⁶⁸ ; 2018; SSc	Self-administered stretching of each finger	Improve functionality	Same stretching as Mugii, et al. ⁶⁷ . regular check-ups occurred every one or two months, or at least every 6 months (within the 9 years)	Occupational therapist	No tailoring.	No information.
Murphy ⁶⁹ ; 2019; SSc	Intensive treatment	Improve arm function	8 sessions; interventions includes various thermal modalities, manual therapy, Physiotouch and education. Home app involves 1 session of education with the OT. The App consists of videos depicting each exercise and ability to track adherence to exercises.	Occupational therapist, Home App	Therapy service are provided as appropriate	No information
Murphy, et al. ⁷⁰ ; 2018; SSc	Occupational therapy	Improve extremity function (contractures)	Preparation for treatment: Thermal modalities (such as Hot packs, focused on areas with limitations Paraffin, focused on digital limitations) Tissue mobilization: PhysioTouch, applied proximal to distal in areas with pathological skin in sections Arm mobility: Passive ROM exercises (hold end position of joint for 3–10 seconds [dependent on skin and joint integrity]; repeat for each affected joint/digit) and active ROM exercises (Functional activities [manual dexterity activities such as working with small foam cubes or jar openers, or rolling putty]) At-home ROM exercises: Tailored active and passive ROM exercises based on limitations in upper extremity mobility	Occupational therapist (certified hand therapist with >30 years of experience treating patients with scleroderma)	Tailored active and passive ROM exercises based on limitations in upper extremity mobility	Did not formally assess adherence; long-term adherence to the home exercise program was poor, participants who did adhere to the daily home exercises had better effects over time compared with those who did not adhere

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Navarrete- Navarrete, et al. ⁷¹ ; 2010; SLE	Cognitive- behavioural intervention	Stress reduction	Stress Management Program; 10 weekly group meetings lasting 1.5 or 2 h, groups of 7–9 patients; Structure and elements: introduction to the session, discussion of homework, group discussion and the development of new coping skills. The sessions dealt with the following: (1) Concept of stress; (2) Cognitive restructuring – main errors in thinking; (3) Cognitive restructuring – main errors in thinking; (3) Cognitive restructuring – challenging thoughts; (5) Alternative thought control strategies – selfinstructional training and thought stopping; (6) Relaxation techniques – diaphragm breathing and deep muscle relaxation (the short circuits); (7) An approach to controlling pain oneself; (8) Training in social skills – assertiveness techniques and basic assertive rights; (9) Training in social skills – how to say no without feeling bad, asking another person to change their behaviour, and (10) Humour and optimism as coping strategies.	Psychologists, Rheumatologist/ Physician	No information.	No information.
Naylor ⁷² ; 1982; SSc	Oral augmentation program (exercises)	Improve mastication and oral hygiene	Frequency: daily for 5 to 7 minutes Content: oral augmentation program consisted of cheek and mouth stretching; performed cheek-stretching exercises by placing the thumb of the right hand in her mouth and stretching the left cheek laterally as far as possible. The process was repeated several times and then the patient was asked to switch hands and repeat the exercise on the right side. After three sets of five stretches on each side she was instructed to perform the movements bilaterally and simultaneously. The final exercise used a bundle of tongue depressors held together by an elastic band. The actual size of the initial bundle should be such that it can be readily placed in the patient's mouth and extend from the premolar area on one side of the arch to the molar region on the opposite side. The bottom and top blades should gently contact the occlusal surface of the distal molars or premolars. By placing the bundle diagonally across the arch, the patient avoids the weaker, single-rooted anterior teeth and directs the forces to the stronger multirooted posterior teeth.	Not clearly stated (Dentist/Physiotherapi st)	Intervention was tailored to the patients physical condition.	No information.

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Naylor, et al. ⁷³ ; 1984; SSc	Comparison of two different exercise programs	Improve oral opening	IG: three mouth-stretching exercises and a new oral augmentation exercise, using tongue depressors CG: six "facial grimacing" exercises performed in three sets of five stretches and including the following instructions: open mouth as wide as possible, open mouth as wide as possible and pull mandible down, purse lips, puff out cheeks, make an exaggerated smile, move mandible to left, right, down, and forward (range of motion). Mouth-stretching exercises: place the right thumb inside the corner of the mouth on the left side and stretched laterally as far as possible, switched hands, and then stretched the right side of the mouth before placing both thumbs in the mouth at the same time; three sets of five stretches were performed. Oral augmentation exercise: inserting tongue depressors between the teeth from the left premolar area to the right molar region. Additional depressors were added to prop open the mouth and stretch the sclerosed facial skin and musculature and held for several minutes. Patients were instructed to stop, rest, and repeat the exercise before recording the number of tongue blades used for that session. Patients were encouraged to increase the number of tongue depressors as often as possible.	Dentist	No tailoring	Persons in the experimental group were instructed to exercise regularly and then were reexamined at the 6-month meeting to evaluate their levels of compliance with the recommended Program when not monitored regularly.
Neville, et al. ⁷⁴ ; 2016; SLE	Lupus Interactive Navigator (LIN)	To increase self- management	Web based program to provide education and to support self-management in persons with SLE. Topics: About Lupus (What Causes Lupus?, Lupus & the Immune System, A Lupus Diagnosis, Prognosis, Flares and Remissions, Lupus & The Body, FAQs/ Myths) Symptom Management & Treatments (Symptoms of Lupus, Medications to Treat Lupus, Side Effects of Medications, Preventing and Managing Flares, Monitoring Your Lupus, Complementary Therapies, Other Therapies, Clinical Trials) Accessing Healthcare (Your Care Team, Communicating with Your Care Team, Covering Medical Costs, Transitioning From Pediatric to Adult Care, Accessing Care in Rural Areas)	Web-based	n.a.	Number of log- ins, duration of each session,

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Ng and Chan ⁷⁵ ; 2007; SLE	Group Psychosocial Program	Enhancing Psychological Well-Being	Support Services (Community Services search tool to locate available lupus- support resources in close proximity to the user's postal code) Family, Friends & Work (Family & Lupus, Lupus & Work, Supporting Someone With Lupus, Resources for Family Members & Friends) Living Well With Lupus (Managing Stress & Fatigue, Getting Enough Sleep, The Importance of Exercise, Depression, Overcoming the Emotional Hurdles of Lupus, Maintaining Healthy Diet, Vaccinations, Pregnancy & Lupus, Young People & Lupus) 6-week, 2.5-hour weekly session psychosocial group (eight to ten persons with SLE) Goal: equip members with knowledge and skills to cope with SLE and stress arising from the illness, to enhance their self-confidence and develop a positive attitude toward the illness, and to enhance their social support network. Content: Understanding SLE, Managing Frustration and Emotion, Identifying the Consequences of Negative Beliefs and Disputing the Beliefs, Breaking through Yourself and Developing Personal Strengths, Understanding One's Rights as a Patient, and Locating Community Resources for Rehabilitation. session started with a warm-up game and a 30-minute minilecture adopting psychoeducational techniques such as providing information, teaching stress management, and demonstrating problem-solving skills, rest of the time therapeutic group interaction and support through simulation exercises and sharing among the participants.	Social worker	The content of the group sessions was tailored to the needs of these people.	No information.
O'Riordan, et al. ⁷⁶ ; 2017; SLE	Fatigue and Activity Management Education (FAME)	To increase participants' understanding of SLE related fatigue and to facilitate development of	Overall aims of FAME are for participants to develop effective fatigue management strategies and increase their occupational participation. Frequency 6 weeks, weekly session of 2.5 hours: one-hour group education and one-hour individual goal setting component with a 30-minute tea/coffee break.	Led by an occupational therapist, included multidisciplinary team	Goal setting was tailored to the needs of the people.	Attendance- rate median 5, range 3-6.

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		strategies to decrease the impact of fatigue on occupational participation	Educational topics: fatigue management, pain management, exercise (delivered by a physiotherapist), joint protection, stress management, and nutrition (delivered by a dietician). Goal setting: aimed to facilitate participants to implement learning gained during the educational session between the weekly sessions.			
O'Connor, et al. ⁷⁷ ; 2016; SSc	Osteopathic manipulative treatment (OMT)	Improve hand function, decrease pain, decrease dyspnea, improve fatigue	Objectives of the OMT 1- Improve hand function by potentially releasing connective tissue (skin, subcutaneous tissues, fasciae, interosseous membrane, tendons, ligaments and joint capsules) tension and retraction, and muscle tension (in upper limbs, thorax and neck); 2- Decrease pain, possibly by relieving pressure on lymphatic, vascular and neurologic structures resulting from connective tissue and muscle tension or retraction17; 3- Decrease dyspnea by potentially restoring better motion and function to the thoracic cage, diaphragm, and thoracic and cervical spine, thoracic inlet and intrathoracic tissues; and 4- Improve fatigue possibly through the previous objectives, and by addressing thoracic and diaphragmatic regions to promote lymphatic and arterial flow, and addressing upper thoracic spine,27 the associated rib dysfunctions and the cranial base for potential effects on sympathetic/parasympathetic balance. The following techniques were used: fascial, ligamentous, myofascial and soft tissue techniques, muscle energy techniques, cranial, visceral and lymphatic drainage techniques. A more detailed description is in the supplemental files of the article.	Osteopath with over 10 years' experience	Individual adaptations (order of the techniques and dosage) were possible if justified by the Participant's specific needs and response to OMT techniques, but the global structure of each session was similar.	No information.
Oliveira, et al. ⁷⁸ ; 2009; SSc	Aerobic exercise	Improve aerobic capacity	Over 8 weeks, 40 min sessions, twice a week; 5 minutes warm- up period, where speed was progressively increased until target heart rate was reached. Last 5 minutes of exercise a cool down was performed, decreasing speed until full stop; first session, performed 15 min of aerobic exercise within the target heart rate, second session 20 min, 25 min in the third and 30 min in all	No information.	The intensity was set individually at the HR of the patient.	Adherence rate of 100 %

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			subsequent sessions; intensity within anaerobic threshold and			
Parisi, et al. ⁷⁹ ; 2017; SSc Perandini, et al. ⁸⁰ ; 2014; SLE	Neuromuscular Taping 12-week exercise training program	Improving hand functioning Improvement of cytokines and soluble TNF receptors (sTNFRs)	10 % before Respiratory compensation point. Cotton-based elastic adhesive and paper backed tape; applied in eccentric way; applied bilaterally, dorsal and palmar sided of the hand; Dorsal hand application consisted of 5 tapes of 20-25 cm in length and 0.5-0.7 cm width applied over the dorsal aspect of the fingers and thumb, starting at the fingernail base and ending above the wrist, with the patient maintaining a clenched fist position with the wrist in flexion; if the patient could not hold a complete clenched fist then the skin has been passively stretched in the direction of the elbow during the tape application; Palmar side of the hand the tape was applied using 5 tapes of 20-25 cm in length and 0.5-0.7 cm width positioned over the palmar aspect of the fingers and thumb, starting at the finger pad and ending above the wrist, with the patient maintaining the hand in opened position with the wrist in extension; also for this side if the patient could not hold a complete extension the skin has been passively stretched in the direction of the elbow during the tape application. For both side application, each tape has been positioned with 0% tension over the skin in a stretched position. Frequency: 2 times weekly for 4 weeks 12-week exercise training program, twice a week, supervised exercise training program in an intrahospital gymnasium. Content: training sessions consisted of a 5-min warm-up, followed by 30–50 min of treadmill walking, and a 5-min cooling-down period. The walking duration was gradually	Physiotherapist No information.	The intensity of the exercise sessions was set individually at the HR of the	No information.
Piga, et al. ⁸¹ ; 2014; SSc	Recovery of Movement and Telemonitoring	Improve hand function	increased at every 4 weeks, from 30 to 50 min. The intensity of the exercise sessions was set at the HR correspondent to the interval between the VAT and 10% below the RCP. Telemonitoring approach to self-managed kinesiotherapy session	Telemonitoring	patient. No tailoring.	Adherence to protocol was defined as the

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	(Re.Mo.Te.)		Strength exercises (descrribed in detail in appendix 2 in the study): isometric muscle contraction, mobility exercises are low resistance or without resistance and performed at the maximum pain-free intensity; patients were taught how to perform the kinesiotherapy exercises, patients were trained to keep the wrist in a neutral position during the exercises, resting on a flat surface when possible. Telemonitoring system: interface allows recognizing (1) The kinesiotherapic sessions performed by the patient; (2) The number of sets and repetitions performed for each exercise; (3) How the patient performed the exercises, providing statistics. The statistics are presented to the physician. The system offers a fast remote analysis of the home sessions, enabling identification of low adherence to the protocol or poor performance.			percentage of complete workout sessions over those scheduled.
Pinto, et al. 82; 2011; SSc	Supervised exercise Training Program	To improve muscle strength/function , and aerobic capacity	12 weeks of supervised training twice a week; sessions consisted of a 5-minute treadmill warm-up followed by 30 minutes of resistance training, 20 minutes of treadmill aerobic training, and 5 minutes of stretching exercises. Resistance training: 5 exercises for the main muscle groups: bench press, leg press, lat pull down, leg extension, and seated row; 4 sets of 8–12 repetition-maximum (RM) [first week only 2 sets of 15–20RM] for each exercise. Progression to greater resistance when patient could perform 12 or more repetitions Aerobic training: intensity of approximately 70% of VO2peak.	Fitness professional, physician	Progression of resistance, according to individual performance	No information
Pizzo, et al. ⁸³ ; 2003; SSc	Exercise program (mouth-stretching and oral augmentation exercises)	Improve mouth opening	Sitting in front of a mirror, place both thumbs into the mouth in order to enlarge the left and right oral angles; stretching movements are done bilaterally and simultaneously, for at least 15 min, twice per day, then inserte a stick of soft wood (dimensions: 2×1.5×9.5 cm) between the teeth from the premolars of one arch towards the molars of the controlateral one, the stick was also rotated on the corner. The patient was also requested to push the stick, as much as possible, further	Dentist	No tailoring.	Patients were evaluated every 2 weeks to check the levels of compliance

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			and further back towards the posterior teeth. This exercise was			
Poole, et al. ⁸⁴ ; 2013; SSc	Mail-delivered self- management program	Improve self- management	performed in the evening for a period of 18 weeks. The program consisted of a workbook and exercise DVD that provided information on medical aspects of the disease, dysphagia, fatigue management, advocacy, activities of daily living, oral hygiene, skin and wound care, psychosocial changes, exercises, and other features of the condition.	Mail-delivered	No tailoring.	No information.
Poole, et al. 85; 2014; SSc	Interactive internet- based SSc self- management program	Improve self- management	Same as ⁸⁴ , translated into an internet format. Each of the modules featured written material, learning activities/action plans, and/or homework and forms to apply strategies. Questions were posted on a discussion board for each module. Participants were notified when questions were posted.	Internet based	No tailoring.	No information.
Poole, et al. ⁸⁶ ; 2010; SSc	Structured oral hygiene instructions and facial and hand exercises	Improve oral hygiene	Dental prophylaxis: scaling and root planning; education videotape on proper brushing and flossing; individual hygiene instructions to be used at home and a 6-month supply of dental products to each participant. Occupational therapy: educational video on hand and facial and oral augmentation exercises; six exercises performed in three sets of five stretches, each held for 3–5 s: open mouth as wide as possible, pull mandible down, purse lips, puff out cheeks, make exaggerated smile, move mandible to left, right, down and forward; Oral stretching/augmentation exercises: right thumb in corner of the left side of the mouth and stretching, switching thumbs to stretch the right side of the mouth, and finally, stretching with both thumbs at the same time; inserting tongue depressors between the teeth from the left premolar area to the right molar region. For more details see Naylor, et al. ⁷³ . Hand exercises consisted of making a fist, pressing the fingers flat against each other, and touching the thumb to the base of the little finger - performed in three sets of five stretches, held for 3–5 s, twice a day.	Registered dental hygienist, Occupational therapist	Individual hygiene instructions	Subjects were not contacted on a regular basis to ensure compliance with exercises or dental program.
Prado, et al. ⁸⁷ ; 2013;	Supervised moderate-intensity	Improving the cardiorespiratory capacity	12 weeks of twice weekly supervised moderate-intensity aerobic exercise training. Training sessions comprised a 5-minute warmup followed by 20 to 50 minutes of treadmill aerobic	Fitness professional and rheumatologist	Aerobic training volume	The exercise adherence rate

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childhood onset SLE	aerobic exercise program		training (a 10-minute increment in the aerobic training volume was applied every four weeks), and 5 minutes of cool down on the treadmill at a low speed followed by stretching exercises.	(monitoring adverse events)		was 94.0 ± 7.03%.
Prado, et al. 88; 2011; juvenile SLE	Exercise training	To improve physical capacity and functioning	Training sessions twice a week: 5-min treadmill warm-up; 30- to 50-min treadmill aerobic training. Aerobic training intensity was monitored by an HR monitor (HR correspondent to the ventilatory anaerobic threshold (VAT)).	Fitness professionals	Tailored to the patients HR.	No information.
Ramsey- Goldman, et al. ⁸⁹ , 2000; SLE	Aerobic exercise (AER), range of motion/muscle strengthening (ROM/MS)	Efficacy and safety of different exercise therapies on patient-reported fatigue and functional status	AER: <i>Phase I</i> (2month): pat received an exercise prescription which specified types of activities allowed, intensity and duration of each activity, and total duration of the exercise session. Exercise to 70-80% of max heart rate. Each exercise session began with a 5-10min warm-up, followed by 20-30minutes of aerobic activity, and concluded with a 5-10min cool-down period. Met for 50 min 3 times per week. <i>Phase II</i> : continued supervised for the first month and then in an unsupervised home exercise for 6 months- prescription similar to the supervised sessions. Pat were instructed to take their pulse, keep logs of their exercise duration, max. heartrate and symptoms experienced during exercise. Monitored by telephone and exercise logs. ROM: <i>Phase I</i> (2month): exercise program limited to isolate upper and lower extremity joint range of motion as well as to limb movement patterns. 3 times a week for 50-min session. <i>Phase II</i> : muscle strengthening was added to the ROM exercise. Session began with stretching, proceeded to the isometric and progressive resistive exercises, and ended with gentle stretching. Typical stretching: 2-3 sets, 10 repetitive isotonic contractions per muscle group using increasing weights from 1-2 pounds. Patients were instructed in a formal, 1-month, 3 times a week, 40-minute session. Continue at home for additional 6 months. Monitored by telephone and exercise logs.	Trained health professionals	Patients received an individual exercise prescription based on their initial level of fitness, which specified types of activities allowed, intensity and duration of each activity, and total duration of the exercise session. A typical strengthening program included 2 to 3 sets of 10 repetitive isotonic contractions per muscle group using increasing weights from 1	Patients were monitored by telephone and exercise logs to encourage compliance.

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Rannou, et al. ⁹⁰ ; 2016; SSc	Physical therapy program	Improve disability	supervised standardized program of 6 physical therapy sections, 13 occupational therapy exercises, 3 types of splints, and a standardized individual impairment report tailored to the patient. Exercises stratified by patient objectives (range of motion, strength, aerobic capacity, and activity limitations) and disease localization (mouth and face, shoulders, increase the range of motion of impaired joints, increase muscle strength and aerobic capacity, and decrease mouth microstomia, skin retractions, limitations in activities, and restrictions in participation.)	Physical and occupational therapy	to 2 pounds depending on subject tolerance. Standardized individual impairment report tailored to the patient, exercises stratified by patient aims	Adherence to supervised and daily home sessions: 15 patients (14%) in the physical therapy group did not attend any supervised session. The mean attendance over the 4-week supervised period was 9.3 sessions (median 11 [range 0–12]). Adherence to the daily home sessions part of the program was low.
Reis and Trevisani ⁹¹ ; 2014; SLE	Aerobic exercise	Improving Sleep	16 weeks, two times per a week; from 1st week up to and including 4th week, subjects will do: 5 minutes warm-up, then 15-30 minutes low to moderate (55-65% VO2) exercise, then 15 minutes stretching. From 5th week up to and including 16th week, subjects will do: 5 minutes warm-up, then intermittent training for between 30-40 minutes, then 10 minutes stretching.	No information	The intensity was set individually at the VO2 of the patient.	No information.

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Reis-Neto, et al. ⁹² ; 2013; SLE	Supervised physical exercise	Increase endothelial function, ergospirometric test variables and disease activity	Exercise protocol: three times per week for 60 min (a 10-min warm-up, 40 min of walking and a 10-min cool-down) in the morning over 16 weeks, walk was conducted at a heart rate corresponding to the ventilatory 1 threshold (VT1) obtained from ergospirometry.	Physical educator or physician	Heart rate corresponding to the ventilatory 1 threshold	Patients were excluded if they did not attend at least 75% of exercise sessions.
Rimmer, et al. ⁹³ ; 2013; SLE	Personalized Online Weight and Exercise Response System (POWER and POWERplus)	Weight management	POWER and POWERplus: 1) Recommendation to exercise from physician; 2) Information brochure on exercise; 3) Pedometer; 4) Monthly newsletter; 5) Telephone consultation to develop a personalized physical activity program; 6) Telephone consultation to develop a personalized nutrition program; 7) Coaching calls to set goals, overcome barriers, and monitor progress regarding physical activity only PowerPlus: 8) Coaching calls to set goals, overcome barriers, and monitor progress regarding healthy eating	POWERS telephone coaches, who had undergraduate degrees in exercise science, nutrition, health education, or a related field, were recruited and trained for this project	Personalized physical activity program, nutrition program, goals to overcome barriers and monitor progress	No information.
Sahebalzama ni, et al. ⁹⁴ ; 2016; SLE	Continuous care model (CCM)	Improve knowledge scores (patient's knowledge and patient's perception of family awareness and knowledge)	Aim is to build a continuous and effective relationship between the nurse, the patient, and his/her family. CCM consist of four stages: orientation, sensitization, control, and evaluation. Orientation: intended to explain the intervention to the patients and their families. Sensitization: intended to increase awareness and involvement of the patients and their families about SLE and the process of self-care by providing educational materials and arranging discussion sessions with the patients and their families. Control: evaluate the quality of care received by the patients and reinforce and internalize the healthy behaviors. Evaluation: intended to reevaluate the process of care and consider the achievements and failures in the process of patient care. Details summary is depicted in the article.	Rheumatologist	Tailored according to the needs of patients, family is exclusively addressed and educated to achieve better surrounding for patients.	7 patients droped out.
Samuelson and Ahlmén ⁹⁵ ; 2003; SSc	Patient education program	Improve self- efficacy	Aim of the educational program: 1) Increase knowledge about the disease, 2) Decrease feelings of being concerned, 3) Facilitate daily activities and influence the participants to adapt	Occupational therapist, social worker, rheumatologist,	Individual goals. Patients could ask for	No information.

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			their behavior to their current capacity, 4) Formulate realistic goals that could be reach during the course, 5) Peer contact. Frequency: seven 3-hour group sessions for 5 weeks Content: First session: conversation concerning experiences of "living with scleroderma", and participants had an opportunity to suggest additional topics for the course Second session: rheumatologist informed the participants about medical aspects of the disease/medication, discussion, goal setting as homework Third session: PT taught about the human body and about mobility in regard to bones, muscles, and joints, patients were led through the activities of a home exercise program, together with the nurse different kinds of physical pain control methods were discussed Fourth session: OT told about hand function and common SSc hand problems, practical test of thermotherapy and hand exercises was introduced, and information about joint protection, splints, and skin care was given, ADLs affected by the disease, and how to solve such problems Fifth session: Exercises in a temperate pool, different relaxation methods by the PT; ergonomics by an OT Sixth session: goal-setting exercise results, information presented by a dietitian, social worker informed about influences on everyday tasks, work, and leisure activities and	physiotherapist, dietitian	additional content.	
			influences on everyday tasks, work, and leisure activities and gave information about available community resources. Seventh session: Time for questions with the rheumatologist, patients carried out practical activities in the training kitchen, with the opportunity to use ergonomic methods and assistive devices.			

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Sandqvist, et al. ⁹⁶ ; 2004; SSc	Paraffin bath in combination with hand exercises	Improve hand function	Paraffin treatment once a day (for a month); hand was dipped five to six times into a 50°C warm paraffin bath, then inserted into a plastic bag and then in quilted mittens, in which it was kept for about 10 min until the paraffin got cold. Hand exercise was performed immediately after the paraffin bath; exercise programme was adapted to each individual's needs, apart from five compulsory exercises (only four exercises were reported in the article): isolated finger flexion, finger extension, finger abduction and thumb abduction.	No information.	Exercise programme was adapted to each individual's needs	To ensure compliance with the procedure, the patients were allowed to borrow the paraffin bath for another month for the treatment of both hands.
Schouffoer, et al. ⁹⁷ ; 2011; SSc	Multidisciplinary team care program	To improve body function, functional ability and quality of live	Standardized group sessions for 12 consecutive weeks, one day per week. (general exercises, hand/mouth exercises, and educational sessions); patients were required to participate in individual supervised exercises provided by a physical therapist near their own home in a private practice once a week and to perform a home-based exercise program on at least 6 days per week.	rheumatologist, occupational therapist, physiotherapist, social worker, nurse	Depending on the patients' individual needs, individual treatments by the rheumatologist and health professionals.	Adherence was monitored by attendance lists and records of individual progress. For the homebased individual exercises a diary was filled in.
Sheffield Hallam University ⁹⁸ ; 2019; SSc	Exercise intervention - arm cranking	Examine the feasibility of exercise in patients with Systemic Sclerosis experiencing Raynaud's Phenomenon	Exercise intervention arm cranking: on an arm crank ergometer; Each training will be consisted of high intensity interval training for 30 minutes (30s 100% PPO/ 30s passive recovery) twice per week for 3 months. Patients will perform two visits for the baseline measurements prior the exercise intervention by repeating them at the end of the exercise intervention. Exercise intervention - Cycling Patients will be requested to perform an exercise session on a cycle ergometer. Each training will be consisted of high intensity interval training for 30 minutes (30s 100% PPO/ 30s passive	No information	Tailored to the patients physical fitness	Three Parts of primary Outcome Measures: 1) Part I (Pilot study): Microcirculatio n in the digital area [Time Frame: 12 months]

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			recovery) twice per week for 3 months. Patients will perform two visits for the baseline measurements prior the exercise intervention by repeating them at the end of the exercise intervention (follow up measurements			2) Part II (Feasibility study): Feasibility of a combined exercise protocol (aerobic with resistance training). [Time Frame: 12 months] 3) Part II (Feasibility study): Assessment of Quality of life [Time Frame: 12 months]
Sheikh, et al. ⁹⁹ ; 2019; SLE	Walk With Ease (WWE)	Improve pain, stiffness, and fatigue	Walk With Ease (WWE) is a 6-week evidencebased walking program for adults with arthritis, available in group or self-directed formats. Self-Guided Format: Patients have to purchase the guidebook. It includes coaching and counselling techniques to (1) Develop a walking plan that will meet the patient's needs, (2) Stay motivated, (3) Manage pain, (4) Learn to exercise safely. In-Person Community Format: WWE group sessions meet three times per week for 6 weeks. Trained group exercise leaders begin each session with a pre-walk discussion covering a specified topic related to exercise and arthritis, followed by a 10- to 40-minute walk that includes a warm-up and a cool-down.	Self-administered, trained group exercise leaders	Intervention was tailored to the patient's needs.	Participants tracked their walking on paper logs (duration walked and distance walked for each day that they walked).
Sohng ¹⁰⁰ ; 2003; SLE	Self-management course	Improve fatigue, coping skills, self- efficacy,	Six weekly 2-hour sessions; course activities focused on an overview of pharmacological therapy, symptom management, exercise, interpersonal relationships, coping with flares, healthy	Nurses	No information.	No information.

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		depression, pain, disease activity	lifestyles, and management of common SLE-related health problems			
Tench, et al. ¹⁰¹ ; 2003; SLE	Exercise Group and Relaxation group	To improve fatigue	Exercise group: patients asked to exercise at home three times a week for 30 to 50 min for a period of 12 weeks at a heart rate corresponding to 60% of peak oxygen consumption; main exercise: walking but patients were encouraged to take other forms of exercise, such as cycling and swimming, and were seen every 2 weeks for a supervised exercise session. Relaxation group: patients were asked to listen to a 30-min relaxation audiotape a minimum of three times a week in a darkened, warm and quiet room; in addition every 2 weeks a supervised relaxation session.	Rheumatologist	Exercise could be chosen freely	Exercise group median (interquartile range) of supervised sessions attended 5 (4–5); relaxation group 4 (2–5). median number home exercise sessions was 35 (25–40); median number home relaxation sessions was 33 (12–36), with a median duration of 30 min for each session.
Thombs, et al. ¹⁰² , 2018; SSc	SPIN-SSLED Program	Improving SSc support group leaders' self- efficacy for carrying out their leader role	The program includes 13 modules that will be delivered live via webinar over the course of the 3-month program. Each module will be delivered in a 60- to 90-minute session. Module topics include (1) The leader's role; (2) Starting a support group; (3) Structuring a support group meeting; (4) Scleroderma 101; (5) Successful support group culture; (6 & 7) Managing support group dynamics I and II; (8) grief and crisis in scleroderma; (9) Marketing and recruitment; (10) The continuity of the group; (11) Supporting yourself as a leader; (12) Virtual support group meetings, (13) Support group leader resources. Participants will	No information	No tailoring	No information

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			receive a workbook, be shown filmed vignettes, and will have access to an online resource center.			
Timóteo, et al. ¹⁰³ ; 2018; SLE	Kinesiotherapy	Improve functional capacity, quality of life, and serum levels of immune system markers	Frequency: period of 4 months, three times a week, individually in sessions lasting 50 min. Structure: warm-up, strengthening and stretching sessions. Content: 1) Warm-up consisted of active movement and self-stretching of the upper limbs, trunk and lower limbs, for 5 min in an orthostatic position. 2) Muscular strength training of the upper and lower limbs consisted of resistance exercises with barbell plates and dumbbells, with voluntary ventilation, performed in three sets of 10 repetitions, with a load of 70%; according to the 10 RM test there were increases of between 2 and 10% of the maximum current load, for one or two additional repetitions. 3) Stretching in the final minutes consisted of passive stretching of the posterior chain of the lower limbs with the patient in dorsal decubitus, neck stretching with the patient seated, and stretching of the upper limbs also with the patient seated. Each movement was performed three times and was maintained for 30 seconds An aerobic training was added after the first month and consisted of 10 min on a stationary electromagnetic bicycle with the load regulated as desired by the patient. (60 rotations per minute and the load could be intensified every 3 min, without the goal of increasing performance in this exercise, but increases of from 5 to 10%, in terms of time and load, were made whenever possible, depending on the willingness of the patient.)	Physiotherapist	The intensity was set individually at the RM of the patient.	No information.
Twumasi, et al. ¹⁰⁴ ; Twumasi, et al. ¹⁰⁵ 2020; SLE	Chronic Disease Self- Management Program (CDSMP)	Improve self- management	The CDSMP is designed to enhance the skills necessary to managing health problems (enhance self-efficacy through weekly action plans, behavior modeling, vicarious learning, problem solving, and peer support) among people with chronic conditions.	Trained leaders, one or both of whom are non-health professionals with chronic diseases themselves.	Intervention was tailored to the patient's needs.	n.a.

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			Format: Small group workshops (12-16 participants), 1 session per week for 6 weeks (2,5 hours per session). Content: (1) Techniques to deal with problems such as frustration, fatigue, pain and isolation, (2) Appropriate exercise for maintaining and improving strength, flexibility, and endurance, (3) Appropriate use of medications, (4) Communicating effectively with family, friends, and health professionals, (5) Nutrition, (6) Decision making, and (7) How to evaluate new treatments.			
Uras, et al. ¹⁰⁶ ; 2019; SSc	Educational materials and a specific "face-to- face" interventions	Improve mouth opening	Educational materials (brochures and DVD) plus a face-to-face intervention. A nurse provided explanations of the exercises, watched the explanatory DVD with the patients, and answered questions and commented relevant points. She then had the patients, under direct observation, repeat the exercises in front of a mirror, so that any errors could be pointed out and corrected. The intervention consisted of stretching exercises and movements involving the mimic muscles to be performed in front of a mirror. These exercises were to be done every day (for 25 minutes) for the entire duration of the program (12 months) and registered in the diary, with any comments. The audio-visual DVD is available at https://www.youtube.com/watch?v=F2Gzc10cRKE).	Nurse	No tailoring.	Patients were contacted each month by a nurse, who checked to see if there were any problems and asked about the patient's adherence to the exercises.
Vitali, et al. ¹⁰⁷ ; 2019; SSc	Oral exercises	Improve oral motor functions	Treatments for impairments of oral structures were sequentially introduced: at first we provided exercises to increase MMO (stretching exercises were performed slowly to prevent injuries, stretch tissues as far as patients are comfortable, held position for 15–20 s.), when a minimum range of motion of oral structures was achieved, strength exercises were provided. Function-oriented exercises (10–20 repetitions): several objects, such as food, kitchen utensils, or others (straws, spoons, tongue depressors, lollypops, gauzes), were used to make them more functional and show the subjects how they performed movements (see study for a detailed description of exercises).	Speech therapist	Intervention was tailored to the patient's condition.	The exercises were embedded in daily activities, using everyday objects to encourage adherence and promote generalization.

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		- · · · · · · · · · · · · · · · · · · ·	The intervention and intensity was tailored to subjects' performance.		T 11 11	71
Williams, et al. ¹⁰⁸ ; Williams, et al. ¹⁰⁹ ; 2019; SLE	Peer Approaches to Lupus Self- Management (PALS) project	To improve self- management, Quality of Life, disease activity, stress, anxiety, depression and Th1/ Th2 balance in peripheral blood	Patients were matched with peer mentors; by telephone for approximately 60 min every week for 12 weeks; content was adapted from the six modules of the Chronic Disease Self-Management Program (CDMP), Arthritis Self-Management Program (ASMP), and Systemic Lupus Erythematosus Self-Help (SLESH) Course. Content: (1) Goal setting & action planning, (2) Exercise, (3) Medication overview, (4) Effective communication, (5) Nutrition & healthy eating, (6) Stress relaxation techniques, (7) Coping, (8) Body image, (9) Complications, (10) Self-monitoring, (11) Sexuality & sexual health, and (12) Trust	Peer mentoring	Tailored to African American women and their needs.	Three mentees and one mentor were lost to follow-up over the course of the study.
Williams, et al. ¹¹⁰ ; 2017; SLE	Peer Approaches to Lupus Self- Management (PALS) project; primary outcome was not specified,	To improve PROs (self-management, Quality of Life, disease activity, stress, anxiety, depression) and Th1/ Th2 balance in peripheral blood	Patients were matched with peer mentors; by telephone for approximately 60 min every week for 12 weeks; content was adapted from the six modules of the Chronic Disease Self-Management Program (CDMP), Arthritis Self-Management Program (ASMP), and Systemic Lupus Erythematosus Self-Help (SLESH) Course, and further tailored to African American women with six added sessions based on cultural issues reported as important to African Americans in earlier research conducted by the principle investigator.	Peer mentoring	Tailored to African American women	No information.
Williams, et al. ¹¹¹ ; 2016; SLE	Improve Quality of life for African- AmericaN lupus patients (IQAN)	To improve self- management (health behaviors, health status, health care utilization, biological markers)	Individualized intervention plan will be developed with each participant. Each IIP will include 1–4 options, including a maildelivered arthritis kit, addition and access to a listserv, participation in a support group, and enrollment in local selfmanagement program(s); intervention will inherently vary by participant.	Intervention Coordinator	Tailored to the participant needs	Quarterly review of their IIP, intervention participants will receive follow up calls to gauge their progress, comfort, adherence, and occurrence of

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						any adverse events.
Wolff, et al. ¹¹² , 2014; SSc	SMART framework for long term management of chronic hand conditions	To improve confidence and ability to self-management	The program consists of a "in-person" and a "remote management" component. The "in-person" component contains an initial phase (from one session to 1-2 sessions weekly over a period of a month to 6 weeks) and a follow up (re-evaluate and assess status performed every 4-6 weeks). Content "in-person": assessment, education, individualized hand home exercise program, general conditioning program, comprehensive treatment. Content "remote management": self Daily: self assessment with templates, self stretches, paraffin treatment Weekly: online logs of their performance, photo documentation	Physician	No information.	No information.
Wu, et al. ¹¹³ ; 2019; SLE	Physical activity counselling	To improve physical activity, disease activity, quality of life, fatigue, sleep	The consultations were developed based on the 5A's model (assess, advise, agree, assist, arrange) combined with the three M's techniques (mention, model, and monitor): Assess: to assess patient's knowledge, attitude and behaviour towards exercise Advise: to advise on the benefits, exercise regimen, and selfmonitoring tool Agree: to establish a personal SMART goal Assist: to achieve personal goals and problem-solving abilities Arrange: to schedule a follow-up visit Patients participated in an exercise counselling programme and wore a pedometer on the waist for 1 week as the baseline and for 12 weeks following the baseline, they were taught how to set up the pedometer, the f2f counselling was conducted at weeks 1, 4, and 8 and lasted 30 minutes; follow-up phone calls were made on weeks 2, 6, and 10 to assess the participants' achievement of their daily goals, and possible barriers were discussed.	Nurse	Intervention was tailored to the patient's needs.	Not reported
Xie, et al. ¹¹⁴ ; 2018; SLE	Transitional care (Omaha System)	Improve self-care, disease activity, quality of life	In this study, the transitional care was designed on the basis of the Omaha System. Omaha System is a framework for problem-solving; Content: consists of three subsystems: problem classification scheme, intervention scheme, and problem rating scale.	Nurses	To the needs of the patients	Telephone follow-up was used to monitor participant compliance

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			Problem classification scheme: covers physiological, psychosocial, health-related behaviors and four environmental domains, each of which contains a number of health problems, totaling health problems. Intervention scheme: consists of teaching, guidance, and counseling, treatments and procedures, case management and four broad surveillance categories. Problem rating scale: is composed of three Likert 5-point scales to measure client's knowledge, behavior, and status Intervention used in the study: first, SLE-related health problems were included in the transitional care protocol; each of the problems was scored on knowledge, behavior, and status by using the three Likert 5-point scales in the problem rating scale. If any one of the scores of a patient's knowledge, behavior, or status is less than 4 points, it indicates that the intervention categories and specific interventions corresponding to the problem should be provided Frequency: 12 weeks, four structural assessments and corresponding interventions as well as four telephone follow-ups			with transitional care interventions and identify the self-anagement barriers of patients.
Yelnik, et al. ¹¹⁵ ; 2016; SLE	Cardiovascular disease (CVD) prevention counseling program;	To improve prevalence of CVD risk factors	consisted of 2 phases: 1) Assessment phase: evaluation of blood pressure, blood glucose, cholesterol profile, body mass index (BMI), smoking, lifestyle habits (diet and exercise), aPL profile, and medications. 2) Education phase: detailed discussion of the above risk factors, as well as CVD and thrombosis prevention strategies, tailored lifestyle recommendations, written summary report, referral further institutions (dietitian, anti-smoking, etc.) if needed. During the 3-year follow up, patients were followed every 3–6 months (based on their baseline risk) for CVD risk factor reassessment and for continued education by trained personnel (a nurse practitioner and a medical doctor), also regular	Nurse and rheumatologist	Tailored lifestyle recommendatio ns, written summary report, referral further institutions (dietitian, antismoking, etc.) if needed	At each follow up visit, questions about diet/exercise habits were repeated.

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			newsletters, pamphlets, and brochures about CVD risk factors and prevention strategies.			
Young, et al. 116; 2002; SLE	LupusHelp	Increasing patient knowledge	Patient information easy to understand without being too basic.	Internet-based	No tailoring	n.a.
Yuen, et al. ¹¹⁷ ; 2011; SLE	Home-based exercise program using the Wii Fit system	Improve fatigue	Rach exercise session began with a 5-min warm up (e.g. one of the games in Yoga involves stretching and/or deep breathing), then aerobic exercise followed by strength training, 5-min cooldown involving deep breathing and/or slow stepping and walking. Wii Fit exercise (aerobic and strengthening) last for 10–20 min depending on the participant's sability, goal was to increase to 30 min per session on 3 days per week over a 10-week period. Participants were allowed to increase the frequency and/or duration of the Wii Fit exercise if they wished to do so, and were encouraged to choose the exercise games that they enjoyed; exercise intensity at a perceived exertion level of 11–13 ('fairly light – somewhat hard') on the 15-point Borg 'Rating of Perceived Exertion' Scale (ranging from 6 to 20)	Research coordinator, Nintendo Wii Fit	Intensity adapted to the patient's condition; increase the frequency and/or duration of the Wii Fit exercise if they wished to do so, and were encouraged to choose the exercise games that they enjoyed	Participants were encouraged to invite their spouse, significant other, or other family members to engage in the Wii Fit exercises together for increased adherence.
Yuen, et al. 118; 2011; SSc	home orofacial exercise program	Improve size of oral aperture	Manual mouth-stretching and oral-augmentation exercises manual mouth-stretching exercise: placing the right thumb at the corner of the left side of the mouth and the left thumb at the corner of the right side of the mouth; simultaneously stretch both sides of the mouth horizontally as far as possible, hold position for 15 to 20s, rest for 10s before repeating the stretching. oral-augmentation exercise: inserting a wood stick (2 cm × 1.5 cm × 9.5 cm) between the upper and lower teeth at one side of the mouth corner, stretch the mouth opening by turning the stick on the corner and gently pushing the stick as far back towards the posterior teeth as possible, hold the stick in this position for 15 to 20s, then removed the stick and rested for	Home exercise/ trained research coordinator	No tailoring.	Adherence rates were determined by computing the ratio of the number of exercise sessions performed by the participants to the number of sessions requested.

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			10s, repeat the entire process on the opposite side of the mouth. each exercise repeat for three times consecutively, perform each type of exercise two times a day (morning and evening). Handouts with pictures showing the exercises were given.			
Yuen, et al. 119; 2011; SSc; (same patients as 118)	Adaptive oral hygiene devices and orofacial home- exercise	Improve gingival health	Patients were instructed to brush their teeth for 2 minutes and to floss using the devices provided, as well as perform the orofacial exercise twice a day, if applicable, for 6 months; intervention group received a rechargeable, powered Oral-B® oscillating-rotating-pulsating toothbrush (no brushing time display) and a Reach® Access™ Flosser. An Oral-B® Precision Clean™ brush head was provided; patients with oral aperture of less than 40 mm, orofacial (manual mouth stretching and oral augmentation) exercises were taught, and handouts with pictures showing the exercises were given.	Home exercise/ trained research coordinator	No tailoring.	To analyze adherence rates, we calculate the monthly adherence rates across the 6-month study period as the ratio of the number of brushing and flossing sessions each month recorded in the participants' log to the number of sessions prescribed (i.e., number of days in that month).
Zanatta, et al. ¹²⁰ ; 2017; SSc	Occupational therapy	Improve activities of daily living	Preliminary informative meeting and six sessions of 90 minutes each over a 3-week period; topic of the program: cooking; getting dressed; personal care; cleaning the house; and leisure time. Patients were taught movements that are less damaging; elaborated different strategies to perform activities, or explore new devices to carry them out.	Occupational therapist	More difficult activities were recorded to elaborate different strategies or explore new	No information.

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					devices to carry	
					them out.	

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