The aim of this descriptive explorative mixed method study was to explore feasibility, patient satisfaction and effectiveness of two exercise programs, Therabite and orofacial exercises, in systemic sclerosis associated microstomia.

**Background:** Systemic sclerosis (SSc) is a severe autoimmune disease and fibrotic cutaneous involvement of hands and face is a typical characteristic. Oral involvement with reduced oral aperture is frequent and associated with impaired food intake, oral hygiene and secondary dental problems. Several studies have shown that stretching (placing the thumbs in opposite corners of the mouth hand, pulling outward) and oral augmentation (tongue depressors between the back molars) exercises can increase oral aperture but is often hampered by low adherence rates.

**Objectives:** The aim of this descriptive explorative mixed method study was to explore feasibility, patient satisfaction and effectiveness of two exercise programs, Therabite and orofacial exercises, in systemic sclerosis associated microstomia.

**Methods:** We included adult patients suffering from systemic sclerosis (fulfilling the ACR/EULAR 2013 criteria) and microstomia (maximal oral aperture <40mm). We discerned two groups: Group A exercised with a passive jaw motion device (Therabite®), and Group B performed mouth exercises. We included adult patients suffering from systemic sclerosis (fulfilling the ACR/EULAR 2013 criteria) and microstomia (maximal oral aperture <40mm). We discerned two groups: Group A exercised with a passive jaw motion device (Therabite®), and Group B performed mouth exercises. Only one intervention was conducted and consent was obtained from all patients.

At time point 6 months, all patients in group A (n=4) and 4 patients in group B (n=5) improved with a median of 9mm (range 2-10) and 7mm (range 4-11), respectively. One patient had a decrease of 2mm. The compliance, measured as the ratio of executed exercises relative to the planned number of exercises ranged between 63.7% and 98.9% in group A and between 48.5% and 97.4% in group B. Details are shown in Table 1. In the follow-up period, we documented maintenance of the observed increase in oral aperture in those patients that continued exercising daily. In all others, maximal oral aperture declined again. All 9 patients attended the interview. Three main themes emerged from the data: drivers, challenges and perceived improvement. Patients highlighted several drivers to perform the exercises at home, such as the motivation to improve current disability cause by microstomia. Furthermore, they equally highlighted several challenges regarding feasibility, such as the struggle to exercise multiple times a day. Most of the patients were hoping that they could keep their improvement. They were willing to continue practicing if necessary, but with a lower frequency.

**Conclusion:** This study suggests that both types of intervention can improve maximal oral aperture. The adherence to therapy was higher than expected but none of the patients considered it feasible to continue practicing 3 times/day in the long-term resulting in a decline of improvement post intervention. This is the first study to report the feasibility of the exercises for the patients and can be very useful for health professionals giving guidance. Future studies are needed in order to define exercise programs that are feasible and can be sustained in the long term.
A TAILOR-MADE EXERCISE PROGRAM DESIGNED FOR IMPROVING CARDIORESPIRATORY FITNESS IN PATIENTS WITH RHEUMATOID ARTHRITIS AND INCREASED CARDIOVASCULAR RISK

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Background: Rheumatoid arthritis (RA) is associated with low levels of cardiorespiratory fitness (CRF), especially in patients with RA and cardiovascular (CV) risk. The optimization of management of CV risk in patients with RA is an important aim in the treatment, including also exercise, particularly in patients with RA with a high CV risk, defined as a 10-year CV risk of 20% or higher. However, exercise to improve CRF in these patients is challenging since professionals should take multiple factors into account, such as comorbid conditions related to CV risk. It is unknown which intensity of exercise improves CRF and is safe for patients with RA and CV risk.

Objectives: To design a tailor-made exercise therapy program to improve CRF for RA patients with CV risk >20%.

Methods: To design a tailor-made exercise therapy program, patients and experts’ opinions were collected, and a systematic literature search on exercise programs in RA and CV risk factors was performed. The ACSM guidelines were also used to gain insight into frequency, intensity, type and progression of the exercises. In addition, a cardiologist rehabilitation team and an arthritis rehabilitation team were consulted during the development of the program. The designed program was partly based on cardiac rehabilitation protocols and especially the way the training load was increased, taking into account the joint load. Finally, the developed exercise program was discussed and approved by an expert panel of patients, rheumatologists, a cardiologist, physical therapists and researchers in rheumatology. The designed program was tested on 10 patients in which the feasibility and safety were tested.

Results: Intensity of exercises was based on the results from the baseline exercise tests showing that on average the VO2 max was under the standard. The maximum Heart Rate (HR max), which was on average (mean, SD) 140.6 (10.9) beats per minute, was used to determine the individually performed intensity of exercises. The duration of the program was 12 weeks. Patients had two training sessions per week with a duration of one hour each. To guarantee safety, the training load was progressively increased, and the tolerability was assessed at every training.

Conclusions: A tailor-made exercise program to improve cardiorespiratory fitness in patients with RA and CV risk is developed, based on the opinion and experience of patients and health professionals and supported by a literature review and guidelines. A progressively increase in intensity of the exercise program, based on the individual maximum HR, is tolerable and safe and might increase cardiorespiratory fitness in patients with RA and CV risk.