

# May an 8-week tailored physiotherapy have a positive impact on sexual function in women with systemic sclerosis and idiopathic inflammatory myopathies? A pilot study

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**Background:** Rare systemic autoimmune rheumatic diseases like systemic sclerosis (SSc) and idiopathic inflammatory myopathies (IIM) may affect all aspects of life, including sexual health. However, no non-pharmacological treatment has been proposed to date addressing these issues. This pilot project aimed to investigate the effect of an 8-week physical therapy program on sexual function in women with IIM and SSc.

## Methods:

In total, 12 women with systemic sclerosis and 4 women with idiopathic inflammatory myopathies who fulfilled the 2013 ACR/EULAR criteria for SSc and the 2017 EULAR/ACR criteria for dermatomyositis/polymyositis and reached the cut-off scores for sexual dysfunction in two of the questionnaires assessing sexual function in our previous studies, were enrolled in the study. Based on patients' possibilities and willingness to participate in the program, they were divided into an intervention group (IG) or a control group (CG). The IG underwent the 8-week tailored physiotherapy program, including the pelvic floor exercise and physiotherapy of musculoskeletal problems subjectively limiting the patient's sexual function (1 hour supervised physiotherapy twice weekly), whereas the control group received no physiotherapy. At the baseline, all patients in the IG and CG underwent a clinical examination performed by a rheumatologist blinded to the group allocation and laboratory tests. Only the patients in the IG underwent a comprehensive kinesiological assessment and pelvic floor examination performed by a physiotherapist. Both groups also filled out a set of questionnaires, evaluating sexual function and sexual quality of life, functional ability, depression, fatigue, quality of life, and systemic sclerosis-related impairment, including hand and mouth function (full names of questionnaires are listed in Table 2). These questionnaires were filled in and clinical examinations were performed in both groups after 8 weeks of physiotherapy program to evaluate its efficacy. Normality of data was tested, and inter-group analysis was performed with 2-way ANOVA, and intra-group analysis by Friedmann's test.

Table 1: Baseline clinical characteristics

PARAMETER	INTERVENTION GROUP (n = 8)	CONTROL GROUP (n = 8)	P-VALUE
Age, years, mean±SEM	46.8 ± 3.1	46.3 ± 3.0	0.982
Disease duration, years, mean±SEM	4.8 ± 2.5	6.4 ± 2.6	0.167
Disease subtype, n	lcSSc/dcSSc : 3/3 PM/DM : 1/1	lcSSc/dcSSc : 1/5 PM/DM : 1/1	0.221 0.999
ESSG activity index (n=6), mean±SEM	0.7 ± 0.3	1.8 ± 1.7	0.361
mRSS (n=6), mean±SEM	7.2 ± 8.5	11.6 ± 5.6	0.460
CRP, mg/L, mean±SEM	1.7 ± 1.2	4.1 ± 3.8	0.138
ESR, mm/h, mean±SEM	7.3 ± 4.6	23.2 ± 11.0	0.030
Prednisone equivalent dose, mg/day, mean±SEM	1.5 ± 3.5	2.1 ± 3.7	0.922
With a partner, n	7	8	0.302
Menopause, n	5	5	0.999

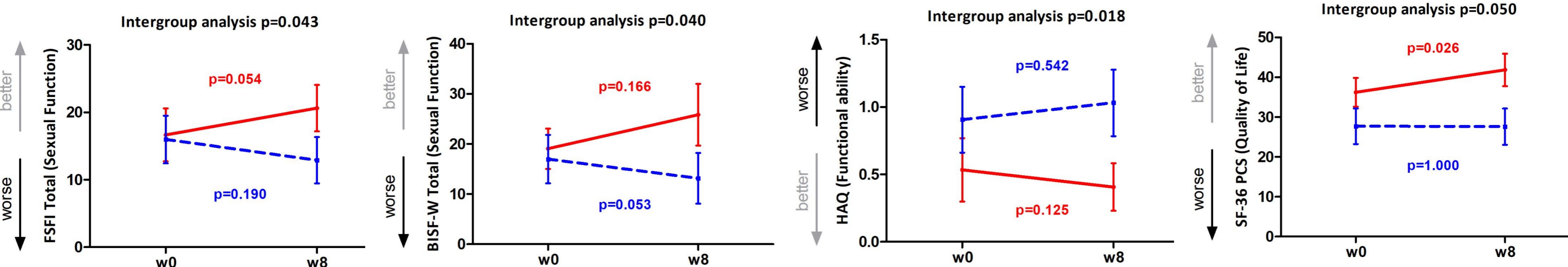
Table 2: Questionnaires used in the study

NAME OF THE QUESTIONNAIRE (abbreviation)	PARAMETER	SCORE RANGE (meaning)
Female Sexual Function Index (FSFI)	Sexual function	2 (worst) – 36 (best)
Brief Index of Sexual Functioning for Women (BISF-W)	Sexual function	-16 (worst) – 75 (best)
Sexual Quality of Life-Female (SQoL-F)	Sexual quality of life	0 (worst) – 100 (best)
Health Assessment Questionnaire (HAQ)	Functional ability	3 (worst) – 0 (best)
Medical Outcomes Short Form-36, physical component (SF-36 PCS)	Quality of life, physical component	16.6 (worst) – 57.9 (best)
Medical Outcomes Short Form-36, mental component (SF-36 MCS)	Quality of life, mental component	5.5 (worst) – 63.6 (best)
Beck's Depression Inventory-II (BDI-II)	Depression	63 (worst) – 0 (best)
Cochin Hand Function Scale (CHFS) (for SSc only)	Hand function	90 (worst) – 0 (best)
Mouth Handicap in Systemic Sclerosis (HMISS) (for SSc only)	Mouth function	48 (worst) – 0 (best)



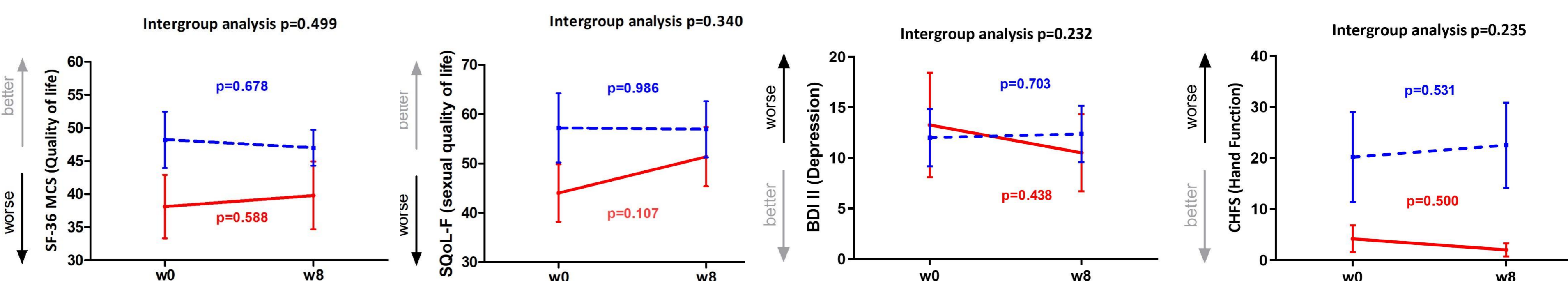
## Results – significant changes:

— intervention  
- - - control



Patients in the IG (red) showed a significant improvement in sexual function, while patients in the CG (blue) gradually deteriorated. The inter-group difference was statistically significant in both questionnaires, whereas the intra-group changes did not quite reach the level of statistical significance. Patients in the IG demonstrated a trend towards an improvement in terms of their overall functional abilities and a significant improvement in the physical component of quality of life. In contrast, the functional ability of the control group deteriorated slightly, and the physical component of quality of life did not change. The inter-group differences in both HAQ and SF-36 PCS were statistically significant.

## Results – non-significant changes:



We can observe a tendency towards a slight improvement in the IG (red) and towards a slight deterioration in the CG (blue) in all four parameters. However, the p-values for intra-group differences in both groups are clearly non-significant. Similarly, the inter-group differences did not reach the level of statistical significance.

**Conclusions:** Our physiotherapy program not only prevented the natural course of progressive deterioration of functional abilities but also led to a significant improvement in sexual function, disability, and overall quality of life in women with IIM and SSc. Thus, physical therapy might become one of the possible therapeutic modalities for sexual problems in women with IIM and SSc. This pilot study should be validated on larger cohorts, optimally in a randomized manner.