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**A combined rehabilitative program is efficacious in the treatment of hands of Systemic Sclerosis (SSc) patients**

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**BACKGROUND:** In SSc, skin thickening and fibrosis of peri-articular structures of hands causes finger contractures, leading to claw-type deformity and movement limitations. The aim of this study was to evaluate the efficacy of a combined rehabilitation program for SSc hands, based on connective tissue massage, Mc Mennell joint manipulation and home daily exercise, compared to a home daily exercise program.

**MATERIALS AND METHODS:** 40 SSc patients (10 males and 30 females; age and disease duration: 57.8 ± 11.8 and 9.0 ± 3.8 years, respectively) with hand stiffness and loss of joint function due to flexion contractures at fingers were enrolled. Twenty (Interventional Group) were treated for a 9 week period (twice a week, 1 hour per session) with a program based on connective tissue massage, Mc Mennell joint manipulation and home exercises for the hand (once a day, 20 minutes per session) and 20 (Control Group) were assigned to the home exercise program only. Patients of both groups were evaluated at baseline (T0), after 9 week (T1) and at a 9 weeks follow-up (T2) for quality of life by Physical (PSI) and Mental Synthetic Index (MSI) of SF-36 and HAQ disability index (DI); for hands involvement by Hand Mobility in Scleroderma (HAMIS) Test, Duruöz scale, fist closure and hand opening.

**RESULTS:** Patients of Interventional and Control Group were similar in their baseline values. No drop out from the study was registered. In Interventional Group, fist closure, HAMIS test and Duruöz scale improved significantly at T1 and the results were maintained at T2. HAQ, PSI and MSI of SF-36 improved significantly at T1, but only the improvement of the HAQ was maintained at T2. In Control Group, only fist closure was improved at T1, with the results not confirmed at T2.

**CONCLUSION:** The combination of connective tissue massage, Mc Mennell joint manipulation and home exercises is effective in the rehabilitative treatment of SSc hands and may lead to an improvement of hand function and quality of life.

**Table. Quality of life and hand assessment at baseline (T0), at the end of treatment (T1) and at follow-up (T2) in Interventional Group**

	T0	T1	T2	T0 -T1	T0 -T2
	<i>Mean± SD</i>	<i>Mean± SD</i>	<i>Mean± SD</i>	<i>p</i>	<i>p</i>
<b>HAMIS</b>	11.40± 6.58	7.00± 6.77	7.80± 6.38	<0.0001	<0.0001
<b>Durouuz</b>	33.05 ± 24.89	20.30 ± 21.56	22.10 ± 21.01	<0.0001	<0.0001
<b>Hand opening*(cm)</b>	15.60± 1.09	16.03± 1.40	15.57 ±1.60	NS	NS
<b>Fist closure* (cm)</b>	2.24 ± 1.60	1.47 ±1.42	1.45±1.25	<0.0001	<0.0001
<b>MSI (SF-36)</b>	37.26 ± 5.55	41.53 ±8.05	38.79 ±5.80	<0.001	NS
<b>PSI (SF-36)</b>	34.02 ± 7.88	38.84± 8.77	36.90 ±8.09	<0.0001	NS
<b>HAQ</b>	0.94 ± 1.02	0.57 ± 0.79	0.55 ± 0.81	<0.0001	<0.0001

**Legend:** MSI =Mental Synthetic Index; PSI =Physical Synthetic Index; HAQ= Health assessment questionnaire; \*Mean values between right and left hand