

Shoulder-Arm Mobility and Upper and Lower Extremity Muscle Function are Impaired in Patients with Systemic Sclerosis

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Abstract : Patients with systemic sclerosis (SSc) have reduced hand function and self-reported limitations in daily activities. Few studies have explored limitations in shoulder-arm mobility and muscle function, or if there are differences in physical function between diffuse cutaneous (dcSSc) and limited cutaneous (lcSSc) SSc. The purpose of this study was to describe objectively assessed shoulder-arm mobility, lower extremity muscle function and muscle endurance in SSc and evaluate possible differences between lcSSc and dcSSc. 121 patients with SSc were included in this cross sectional study. Shoulder-arm mobility were examined using the Shoulder Function Assessment Scale (SFA) including 5 tasks ,lower extremity muscle function was measured by Timed stands test (TST) and muscle endurance in shoulder- and hip flexors were assessed by the Functional Index 2 (FI-2). Patients with dcSSc had median SFA hand to back score 5 (4-6) and median "hand to seat" score of 5 (4-6) compared to patients with lcSSc with corresponding median values of 6 (4-6) and 6 (5-6) respectively ($p<0.01$ - $p<0.05$). 50% of both patientsgroups had lower muscle function assessed by the TST compared to age- and gender matched reference values but there were no differences in TST between the two patient groups. There was no difference in FI-2 scores between dcSSc and lcSSc. The whole group had 40 (28-83) % and 38 (32-72) % of maximal FI-2 shoulder flexion score on the right and left sides, and 40 (23-63) % and 37 (23-62) % of maximal FI-2 hip flexion score on the right and left sides. Reference values for the FI-2 indicate that healthy individuals perform in mean 100 % of maximal score. Patients with dcSSc were more limited than patients with lcSSc. Patients with SSc have reduced muscle function compared to reference values. These results highlights the importance of assessing shoulder-arm mobility and muscle function as well as a need for further research to identify exercise interventions to target these limitations.

Keywords : diffuse, limited, mobility, muscle function, physical therapy, systemic sclerosis

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