

## **5. Exercise Habits and Associated Factors in Scleroderma: A Scleroderma Patient-centered Intervention Network (SPIN) Cohort Study**

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Exercise has been associated with improved health among people with many medical conditions, including cardiovascular disease, hypertension, stroke, and arthritis. Improved cardiovascular and musculoskeletal fitness has been shown to impact fatigue, mobility, overall disability, and survival, for instance. Little is known, however, about the exercise habits of people with systemic sclerosis (SSc, or scleroderma). The objective was to assess the proportion of individuals with SSc who exercise and, among those who exercise, the amount of time spent exercising per week and the types of exercise performed. Additionally, we investigated associations of demographic and disease variables with engagement in exercise and amount of time exercising.

The sample consisted of adult participants with SSc who were enrolled in the Scleroderma Patient-centered Intervention Network (SPIN) Cohort and completed baseline questionnaires from March 2014 through August 2015. Participants completed items related to whether they exercise at present, what types of exercise they perform, and how many hours per week. Baseline questionnaires also include physician-reported medical characteristics, self-report demographic characteristics, the Health Assessment Questionnaire – Disability Index (HAQ-DI), Patient Health Questionnaire-9, and PROMIS-29 (functioning, depressive symptoms, anxiety, fatigue, sleep, pain, social roles).

In total, 752 participants were included in analyses, of whom 87% were women with a mean age of 55.0. The majority (58%) had limited or sine SSc. Approximately half of participants (52%) reported some type of exercise, and these patients exercised an average of 4.7 hours per week. Walking was the most commonly reported type of exercise (76%). Exercising was associated with greater years of education ( $p < 0.001$ ), lower body mass index ( $p < 0.001$ ), current alcohol consumption (yes = 58%, no = 46%,  $p = 0.001$ ), smoking (yes = 23%, no = 53%,  $p < 0.001$ ), disease subtype (limited or sine=55%, diffuse=47%,  $p = 0.035$ ), lower HAQ-DI total scores ( $p < 0.001$ ), higher functioning ( $p < 0.001$ ), lower anxiety ( $p < 0.001$ ), lower depressive symptoms ( $p < 0.001$ ), less fatigue ( $p < 0.001$ ), lower sleep disturbance ( $p < 0.001$ ), higher ability to participate in social roles and activities ( $p < 0.001$ ), lower pain ( $p < 0.001$ ) and higher PHQ-8 ( $p < 0.001$ ).

Approximately half of patients with SSc exercise. Those who exercise report that they exercise on average more than the Canadian Physical Activity guidelines of 2.5 hours per week. A better understanding of exercise patterns and factors associated with exercise is needed to design intervention programs that support exercise for patients with SSc.