AB1401-HPR AN EXPLORATORY STUDY EVALUATING FEASIBILITY AND EFFECTIVENESS OF TWO DIFFERENT EXERCISE PROGRAMS IN SYSTEMIC SCLEROSIS ASSOCIATED MICROSTOMIA

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Background: Systemic sclerosis (SSc) is a severe chronic connective tissue disease with a high disease burden. Oral involvement with impaired oral aperture (microstomia) is frequent and associated with impaired food intake, oral hygiene and secondary dental problems. Preventive measures through mouth-stretching and oral augmentation exercises have been shown to reverse the progression of microstomia.

Objectives: This exploratory study assesses the effectiveness and feasibility of two different exercise approaches designed to increase oral aperture.

Methods: Two groups had to exercise for 10 min, 3 times/day for 3 months. Group A exercised with a passive jaw motion device (Therabite), and Group B did mouth-stretching exercises. Patients were contacted 4 times by telephone to address encountered problems. The subjects used an exercise diary to document compliance. Patients were evaluated at baseline, 3 months (period without intervention), 6 months (at the end of the treatment after 3 months of intervention) and 9 months (follow-up).

Results: At present, 9 patients (Therabite n=4, mouth-stretching exercises n=5) were included and recruitment is ongoing. Seven patients completed the study and increase of oral aperture was observed in all patients in both groups. In the Therabite group, after 3 months of exercise, increase of oral aperture was 9, 2, 9 and 10 mm. In the mouth-stretching exercise group the increase of oral aperture was 11, 10 and 4 mm after 3 months. The compliance, measured as the ratio of executed exercises relative to the planned number of exercises was 95,2%, 85,7%, 98,9% and 63,7% in the Therabite group and 97,4%, 48,6% and 68,3% in the mouth-stretching exercise group.

Conclusions: An increase of oral aperture is observed in all patients after 3 months of exercising with the Therabite device as well as after mouth-stretching exercises. No clear differences are observed between both groups, but the study was not designed nor powered for this. Remarkably, a high compliance for the treatment regime was observed in most patients.

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AB1402-HPR VALIDITY OF BIODEX BALANCE SYSTEM IN FIBROMYALGIA PATIENTS

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Background: Fibromyalgia (FM) patients are commonly suffer from balance problems and increased fall frequency. However, validity of any measurement tool has not been determined in clinical trials. Modified Clinical Test of Sensory Interaction and Balance Test (M-CTSIB) is a simple and easily administered test.

Objectives: The aim of the study was to investigate the validity and reliability of the M-CTSIB in FM patients.

Methods: Twenty-one FM patients and 15 age matched controls were evaluated M-CTSIB. M-CTSIB was evaluated by Biodes-BioSwayTM (Biodes Inc., Shirley, New York). M-CTSIB evaluates the relationship between balance and visual, somatosensory and vestibular system. Tests carried out were 4 conditions, condition-1: eyes open-firm surface, condition-2: eyes closed-firm surface, condition 3: eyes open-foam surface, and condition 4: eyes closed-foam surface, for 30 s intervals with two repetitions. Body oscillations of the participants were calculated by the system and Sway Index scores obtained. High scores indicate high postural sway of the test subject.

Results: The results of this study, FM patients had significantly impaired balance in all conditions of M-CTSIB compared to controls ($p<0.05$). Discriminatory power of all subcomponents of M-CTSIB between groups was excellent. The ROC areas under the curves were 0.803 for condition-1, 0.757 for condition-2, 0.833 for condition-3, 0.776 for condition-4 (AUC=0.803, AUC=0.757, AUC=0.833, AUC=0.776, respectively).

Conclusions: These results suggest that FM may lead to increase balance problems. M-CTSIB has been proved to be valid, objective and clinically useful method to detect balance impairments in FM patients.

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AB1403-HPR INVESTIGATION OF THE VALIDITY OF BETY SCALE IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: The Cognitive Exercise Therapy Approach is a biopsychosocial model for the patients with rheumatic diseases.¹ Cognitive Exercise Therapy Approach Scale (the authors request that the abbreviation stay as "BETY" as the original in Turkish) is a scale that evaluates the biopsychosocial status of the patients with rheumatic diseases. This scale needs validation studies in different rheumatic diseases.²

Objectives: The aim of this study is to investigate the validation of the BETY scale in patients with Rheumatoid Arthritis (RA).

Methods: 120 RA patients were included in this study. To determine the functional status of the patient Health Assessment Questionnaire (HAQ) was used. Rheumatoid Arthritis Quality of Life Scale (RAQoL) and 36-Item Short Form Survey (SF-36) were used to measure quality of life. Hospital Anxiety and Depression Scale (HADS) was used to determine anxiety and depression levels. BETY scale was used to in addition to this questionnaires for the validation.

Results: 120 RA patients including 13 men and 107 women were participated in the study. The average age of the participating patients was 28.47 ± 11.39 years and the body mass index was 28.4 ± 6.56 . There was a very high correlation between the BETY scale and RAQoL ($r=0.817$, $p<0.001$). There was high correlation between the BETY scale and

Abstract AB1403HPR – Table 1. Correlations

		RAQoL	SF-36 PF	SF-36 RL	SF-36 RLE	SF-36 P	SF-36 GHP	xHAQ	HADS Anxiety	HADS Depression
BETY	r	0817	–0,576	–0,525	–0,598	–0,610	–0,420	0606	0617	0597
p		0000	0000	0000	0000	0000	0000	0000	0000	

PF: Physical Functioning, RL: Role Limitations, RLE: Role Limitations Due to Emotional, P: Pain, GHP: General Health Perception

subscale of the HADS-Anxiety, HAQ and subscale of the SF-36 Pain ($r=0.617$, $p<0.001$; $r=0.606$, $p<0.001$; $r=-0.610$, $p<0.001$, respectively). There was moderate correlation between the BETY scale and subscale of the HADS-Depression, subscales of the SF-36 form Physical Functioning, Role Limitations, Role Limitations Due to Emotional and General Health Perception ($r=-0.597$, $p<0.001$; $r=-0.576$, $p<0.001$; $r=-0.525$, $p<0.001$; $r=-0.598$, $p<0.001$; $r=-0.420$, $p<0.001$, respectively) (Table 1–2).

Conclusions: There were high or moderate correlations between the BETY scale and valid and reliable scales that are developed for these parameters. The BETY scale can be considered as a valid scale in patients with RA.

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AB1404-HPR PRELIMINARY NORMATIVE DATA OF ULTRASONOGRAPHIC MUSCLE THICKNESS AND CROSS-SECTIONAL AREA OF THE THENAR MUSCLES

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Background: Muscle thickness and cross-sectional area (CSA) of the thenar muscles can vary depending on different pathologies (such as neuropathies, arthritis etc.). It is important to evaluate these muscles throughout the diagnosis and treatment processes to understand the pathophysiology of diseases and to identify new treatment strategies. Ultrasonographic imaging has been shown to be valid and reliable tool for the measurement of the muscle thickness and CSA of the particular thenar muscles,¹⁻² however there are no studies demonstrating normative values of all thenar muscles.

Objectives: The purpose of this study is to obtain normative thickness and CSA values for the thenar muscles in healthy individuals by ultrasound and to assess the inter-rater reliability of sonographic muscle assessments.

Methods: The thenar muscles were examined ultrasonographically in eleven healthy volunteers. The assessment was carried out using Shimadzu SDU 1200-Pro US system working with 8–10 MHz linear probe. A custom-made foam cast was used for standardised positioning of the probe. The thickness and CSA parameters of FDI, OP, APB, flexor pollicis brevis (FPB), adductor pollicis (AdP) muscles were examined by two different investigators on the same image. Measurements were made from the palm side of the hand for APB, FPB, OP muscles and from the dorsal side of the hand for AdP and FDI muscles, using five different positions.³ To analyse inter-rater reliability, the examinations of both raters were compared.

Results: Eleven healthy female subjects (mean age: 24.45±2.77 years; BMI: 21.43±2.48 kg/m²) were included in this study. Nine subjects had right hand dominance and 2 had left hand dominance. The reliability between two assessors, expressed as an interclass correlation coefficient (ICC), was excellent for all muscles (ICC range min:0.759, max:0.993 $p<0.05$).

The mean thickness values of muscles were ordered from thick to thin in longitudinal assessment as AP, FDI, FPB, OP, APB. The mean thickness values of muscles were ordered from thick to thin in transverse assessment as AP, FDI, FPB, OP, APB. The mean CSA values of muscles were ordered from thick to thin as AP, FPB, FDI, APB, OP.

Abstract AB1404-HPR – Table 1

Muscle		Longitudinal Thickness (cm)	ICC(p)	Transvers Thickness (cm)	ICC(p)	CSA (cm ²)	ICC(p)
APB	D	0.54	0.976(<0.001)	0.43	0.877(<0.001)	1.0	0.969(<0.001)
	ND	0.54	0.943(<0.001)	0.38	0.872(<0.007)	0.90	0.836(<0.004)
OP	D	0.58	0.993(<0.001)	0.44	0.964(<0.001)	0.74	0.759(<0.017)
	ND	0.56	0.909(<0.001)	0.40	0.872(<0.002)	0.75	0.851(<0.003)
FPB	D	0.63	0.883(<0.001)	1.0	0.891(<0.001)	2.20	0.891(<0.001)
	ND	0.63	0.795(<0.01)	0.95	0.928(<0.001)	2.16	0.944(<0.001)
AP	D	1.26	0.997(<0.001)	1.28	0.981(<0.001)	2.68	0.900(<0.001)
	ND	1.25	0.967(<0.001)	1.26	0.986(<0.001)	2.42	0.886(<0.001)
FDI	D	1.03	0.977(<0.001)	0.95	0.956(<0.001)	1.96	0.948(<0.001)
	ND	1.0	0.968(<0.001)	0.93	0.959(<0.001)	1.97	0.896(<0.001)

D: dominant, ND: non-dominant

Conclusions: Ultrasonography can be used to reliably assess the thenar muscle architecture. This study is important to reveal the normative thickness and CSA values of the thenar muscles in healthy subjects. This data may provide a more comprehensive understanding of musculoskeletal problems and underlying pathophysiological mechanisms which consequently may have an impact on clinical decision making.

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AB1405-HPR THE COMPARISON OF POSTERIOR SHOULDER TIGHTNESS IN PATIENTS HAVING CHRONIC NECK PAIN AND IN HEALTHY SUBJECTS

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Background: Chronic neck pain (CNP) causes the disruption of the thoracic region and the shoulder girdle biomechanics besides the cervical region. The shoulder capsule is often thickened in shoulder problems, which causes shoulder tightness. In the literature, the effect of CNP on shoulder tightness was not investigated.

Objectives: The purpose of this study is to investigate the posterior shoulder tightness (PST) in patients having CNP and to interpret the effect of patients functional level and posture.

Methods: Non-specific CNP patients (n=16, female) and healthy subjects (n=16, female) were included and no shoulder problem was identified. The severity of the pain with Visual Analogue Scale (VAS); PST with bubble inclinometer; functional disability level with Neck Disability Index (NDI); influence of posture with New York Postural Rating Scale (NYPRS), upper limb muscle strength evaluated with handgrip. The Mann-Whitney U test Pearson correlation analysis was used to determine the relationship between PST and functional disability levels.

Results: Age and BMI values of healthy subjects and patients with CNP were similar ($p>0.05$). The mean duration of disease in patients with CNP was 60.63±35.37 months. Patients with CNP had lower PST values than healthy subjects, namely shoulder tightness is more than healthy subjects ($p<0.001$). The functional disability level score was higher in patients with CNP than in healthy subjects ($p<0.001$). NYPRS scores were lower in patients with CNP than in healthy subjects, namely the posture was more adversely affected in these patients ($p<0.001$). Handgrip values were lower and the pain severity at rest and activity was