Objectives: To examine the possible role of genetic susceptibility for fatigue in southern Spanish women with fibromyalgia, by looking at the possible associations of fatigue and single nucleotide polymorphisms in 34 fibromyalgia candidate-genes, at the interactions between genes, and at the associations between gene-physical activity.

Methods: In this cross-sectional study participated 276 women with fibromyalgia. We extracted DNA from saliva in order to analyse gene-polymorphisms related to fibromyalgia susceptibility, symptoms, or potential mechanisms. Accelerometers registered the participants' physical activity and sedentary time. Five dimensions of fatigue were assessed with the Multidimensional Fatigue Inventory. Age, body fat (%), and analgesics and antidepressants consumption were considered as confounders in all analyses. Based on the Bonferroni's and False Discovery Rate (FDR) values, the statistical significance was interpreted.

Results: AT carriers of the rs4453709 polymorphism (sodium channel protein type 9 subunit alpha, SCN9A, gene) showed the highest scores on fatigue. Carriers of the heterozygous genotype of the rs1801133 (methylene tetrahydrofolate reductase, MTHFR, gene) or rs4597545 (SCN9A gene) polymorphisms who were physically active reported lower fatigue compared to their inactive counterparts. Highly sedentary carriers of the homozygous genotype of the rs7607967 polymorphism (AA/GG genotype; SCN9A gene) presented higher fatigue than those with lower levels of sedentary time.

Conclusion: Physical (in)activity behaviours and the SCN9A and MTHFR genes were jointly related to fatigue. Thereby, the potential benefits of following an active lifestyle might be observed more clearly in women with fibromyalgia genetically predispose to higher levels of fatigue.

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THU0469

CLUES TO RECOGNIZE SECONDARY FIBROMYALGIA IN PATIENTS WITH OSTEOARTHRITIS ACCORDING TO A FIBROMYALGIA ASSESSMENT SCREENING TOOL OF SCALES ON A MULTIDIMENSIONAL HEALTH ASSESSMENT QUESTIONNAIRE (MDHAQ/FAST3-F)

Mariam Riad, Isabel Castrejon, Joel Block, Theodore Pincus. *Rush University Medical Center, Chicago, United States of America*

Background: A multidimensional health assessment questionnaire (MDHAQ) includes scales for a self-report painful joint count, symptom checklist, and fatigue visual analog scale (VAS), which may be compiled into a fibromyalgia assessment screening tool (FAST3-F), in addition to physical function, pain VAS, and patient global VAS, compiled into routine assessment of patient index data (RAPID3). FAST3-F agrees >80% with 2011 formal fibromyalgia (FM) criteria in rheumatoid arthritis (RA) patients who have secondary FM.

Objectives: To recognize clues to secondary FM in osteoarthritis (OA) patients seen in routine care, according to FAST3-F, and to analyze MDHAQ demographic and other clinical data in OA patients who did or did not meet MDHAQ/FAST3-F criteria for secondary FM.

Methods: All patients complete an MDHAQ at all visits prior to seeing the rheumatologist at an academic rheumatology site. The 2-page MDHAQ includes RAPID3 to analyze clinical status, and a cumulative 0-3 FAST3-F scale to recognize FM. FAST3-F is scored 0-3, with 1 point each for 0-10 fatigue VAS ≥ 6 , 0-54 self-report joint count ≥ 16 , and 0-60 symptom checklist ≥ 16 . FAST3-F scores of $\geq 2/3$ agree >80% with formal 2011 FM revised diagnostic criteria, based on data for area under the curve (AUC) on receiver operator characteristic (ROC) curves. A two-sample t test was used to compare the two groups; p values were considered significant if ≤ 0.05 .

Results: Among 173 OA patients, 55 (32%) met FAST3-F criteria of $\geq 2/3$ for secondary FM. Patients who met criteria had lower formal

educational level ($p=0.01$ -Table), but did not differ significantly from those who did not meet criteria according to age, sex, or body mass index (BMI) (Table). MDHAQ scores for physical function, pain, patient global assessment, RAPID3, poor sleep quality, anxiety, and depression were significantly higher in the FAST3-F positive than negative patients ($p<0.001$ -Table).

Abstract THU0469 – Table 1. Mean values for demographics and clinical variables at baseline of 173 patients with OA

Mean (standard deviation=SD) or % of variable:	All patients	Fibromyalgia according to FAST3-F		P
		Yes	No	
N (%)	173	42 (24%)	131 (76%)	
Demographics				
Age (years), mean (SD)	66.1 (10.7)	64.5 (11.7)	66.6 (10.5)	0.27
Female, %	84%	88%	82%	0.38
BMI, mean (SD)	32.9 (7.8)	33.8 (6.8)	32.7 (8.0)	0.58
Educational level (years), mean (SD)	13.7 (3.8)	12.0 (3.9)	14.2 (3.6)	0.01
Clinical Variables				
Physical function (0-10), mean (SD)	3.1 (1.9)	4.6 (1.8)	2.6 (1.6)	<0.001
Pain (0-10), mean (SD)	6.9 (2.3)	8.2 (1.5)	6.5 (2.4)	<0.001
Patient global assessment (0-10), mean (SD)	5.9 (2.7)	7.8 (1.9)	5.3 (2.6)	<0.001
RAPID3 (0-30), mean (SD)	15.8 (6.0)	20.4 (4.6)	14.4 (5.7)	<0.001
Sleep quality (0-3.3), mean (SD)	1.4 (1.0)	1.9 (0.9)	1.2 (0.9)	<0.001
Anxiety (0-3.3), mean (SD)	0.7 (0.8)	1.2 (0.8)	0.5 (0.8)	0.001
Depression/feeling blue (0-3.3), mean (SD)	0.6 (0.8)	1.2 (0.8)	0.5 (0.7)	0.001
Clinical diagnosis of depression, %	13%	32%	7%	0.01

Abbreviations: FAST3-F= fibromyalgia assessment screening tool, BMI=body mass index

Conclusion: MDHAQ/FAST3-F provides clues to identify OA patients with secondary FM in routine care. Nonetheless a definitive diagnosis requires a physician. The findings may be useful to recognize a basis for poor responses in clinical care, clinical trials, and other clinical research, and enhance understanding of pain mechanisms in OA versus FM versus OA with FM.

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THU0470

ASSOCIATION OF SEDENTARY TIME AND PHYSICAL ACTIVITY WITH PHYSICAL FITNESS IN WOMEN WITH FIBROMYALGIA: AN ISOTEMPORAL SUBSTITUTION APPROACH

Cristina Maestre Cascales¹, Blanca Gavilán Carrera², Pedro Acosta Manzano², Milkana Borges Cosic², Alberto Soriano Maldonado³, Ciara Hughes⁴, Fernando Estevez-Lopez². ¹Universidad Politécnica de Madrid, Madrid, Spain; ²University of Granada, Granada, Spain; ³University of Almería, Almería, Spain; ⁴Ulster University, Belfast, United Kingdom

Background: Behaviours of people with fibromyalgia may impact their levels of physical fitness, which is a marker of physical and psychological health^{1,2,3}. However, scarce research has studied the association of sedentary time (ST) and physical activity (PA) with physical fitness. Interestingly, increasing time in one behaviour requires decreasing time in another. Thus, it is also of interest to understand what is the theoretical impact of replacing sedentary time (ST, e.g., sitting) by light or moderate PA (LPA and MPA, respectively) as well as replacing LPA by MPA on physical fitness in fibromyalgia.

Objectives: To assess the association of replacing ST for different physical activity levels (i.e., ST by LPA or MPA) as well as of LPA by MPA with physical fitness in women with fibromyalgia.

Methods: A total of 407 women with fibromyalgia (51.87 $\pm$ 8.01 years old) participated in this cross-sectional study. ST, LPA and MPA were objectively measured with triaxial accelerometer for 7 consecutive days. Vigorous physical activity was not analysed as this is a very uncommon behaviour in the population. Physical fitness was assessed through the Senior Fitness Test Battery plus the handgrip strength test. The associations between the replacement of 30 min/day of ST with an equivalent time of LPA or MPA were tested by isothermal substitution analyses. Body mass index and age were included as covariates.