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## Novedades en Fibromialgia

### Mayo 2007 – Mayo 2008

Dr. Ferran J. García Fructuoso

## Actividad científica

- 358 artículos PubMed
- 121 artículos en EMBASE




17 %  
Respecto al  
año anterior

Dr. Ferran J. García Fructuoso

## El ejercicio aeróbico se consolida como recomendación

**Exercise for Fibromyalgia: A Systematic Review.**  
 Busch AJ, Schachter CL, Overend TJ, Peloso PM, Barber KA. J Rheumatol. 2008 May 1

**OBJECTIVE:** Fibromyalgia (FM) is a syndrome expressed by chronic widespread pain often associated with reduced physical function. Exercise is a common recommendation in management of FM. We evaluated the effects of exercise training on global well-being, selected signs and symptoms, and physical function in individuals with FM. **METHODS:** We searched Medline, Embase, CINAHL, SportDiscus, PubMed, PEDro, and the Cochrane Central Register for Controlled Trials to July 2005 and included randomized trials evaluating cardiorespiratory endurance, muscle strength, and flexibility. Methodological quality was assessed using the van Tulder and Jadad instruments. Training protocols were evaluated using American College of Sports Medicine (ACSM) guidelines. Clinical heterogeneity limited metaanalysis to 6 aerobic and 2 strength studies. **RESULTS:** There were 2276 subjects across the 34 studies; 1264 subjects were assigned to exercise interventions. Metaanalysis of 6 studies provided moderate-quality evidence that aerobic-only exercise training at ACSM-recommended intensity levels has positive effects on global well-being (SMD 0.49, 95% CI 0.23-0.75) and physical function (SMD 0.66, 95% CI 0.41-0.92) and possibly on pain (SMD 0.63, 95% CI -0.09 to 1.29) and tender points (SMD 0.23, 95% CI -0.18 to 0.65). Strength and flexibility remain unevaluated; however, strength training may have a positive effect on FM symptoms. **CONCLUSION:** Aerobic-only training has beneficial effects on physical function and some FM symptoms. Strength-only training may improve FM symptoms, but requires further study. Large, high-quality studies of exercise-only interventions that provide detailed information on exercise prescription and adherence are needed.




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## Lo mismo que regular el sueño

**The significance, assessment, and management of nonrestorative sleep in fibromyalgia syndrome.**  
 Moldofsky H. CNS Spectr. 2008 Mar;13:22-6.

Sleep Disorders Clinic of the Centre for Sleep and Chronobiology, Toronto, Ontario, Canada.  
 h.moldofsky@utoronto.ca

People with fibromyalgia syndrome (FMS) experience unrefreshing sleep, aches, hypersensitivity, and cognitive and emotional difficulties. Although no specific causative factor or biological agent is known to account for all of the features of FMS and these related diagnoses, the generalized hypersensitivity of the body is considered to be affected by disturbances in central nervous system (CNS) functions. Such CNS disturbances are intrinsic to the sleeping-waking brain, where the common symptom elements in all these illnesses are poor quality of sleep, nonspecific pain, fatigue, and psychological distress in the absence of known disease pathology.



Dr. Ferran J. García Fructuoso

## Papel de la Dopamina

Role of central dopamine in pain and analgesia  
Patrick B Wood

- Si la FM ya es considerada claramente como una enfermedad producida por una alteración en los mecanismos de modulación del dolor, el papel de la Dopamina en este trastorno, se considera cada vez más relevante.

Recent insights have demonstrated a central role for dopaminergic neurotransmission in modulating pain perception and natural analgesia within supraspinal regions, including the basal ganglia, insula, anterior cingulate cortex, thalamus and periaqueductal gray. In addition, while the participation of serotonin and norepinephrine in spinal descending inhibition of pain is well known, a critical role for dopamine in descending inhibition has also been demonstrated. Decreased levels of dopamine likely contribute to the painful symptoms that frequently occur in Parkinson's disease. Moreover, abnormalities in dopaminergic neurotransmission have been objectively demonstrated in painful clinical conditions, including burning mouth syndrome, fibromyalgia and restless legs syndrome. Evidence from animal models and indirect evidence from pharmaceutical trials also suggest a role for dopamine in chronic regional pain syndrome and painful diabetic neuropathy. Several novel classes of medication with analgesic properties have bearing on dopaminergic activity as evident in the capacity of dopamine antagonists to attenuate their analgesic capacity. An expanded appreciation for the role of dopamine in natural analgesia provides the impetus for further study involving preclinical models and advanced neuroimaging techniques in humans, which may lead to the development of novel therapeutic strategies.

Expert Review of Neurotherapeutics, 2008, 8: 781-97

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## "U" invertida de la dopamina

- Conocer estos mecanismos dicotómicos puede tener un gran interés en el planteamiento del tratamiento.



García-Fructuoso FJ, Martínez-Lavin M, et al. Póster aceptado en ACR/ARHP Scientific Meeting, San Francisco, October 24-29, 2008.

Dr. Ferran J. García Fructuoso

## Autoinmunidad

- ¿Es la Fibromialgia (FM) una enfermedad autoinmune.
- No lo parece, sin embargo es frecuente encontrar alteraciones de la autoinmunidad en la FM.



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## Propuesta de subgrupos en FM

- Tipo I.- Al ta sensibilidad al dolor con alodinia. No asociada a condición psiquiátrica previa o simultánea.
- Tipos II y III.- Depresión y/o Trastorno Ansioso-Depresivo asociado a dolor generalizado.
- Tipo IV.- Depresión mayor, Dolor somatomorfo o Trastorno por Estrés Posttraumático.

The classification of fibromyalgia syndrome.  
Miller W, Schneider EM, Stratz T.

As has been shown by a number of working groups, primary fibromyalgia syndrome does not represent a single clinical entity. It is possible to distinguish between a subgroup with high pain sensitivity and no associated psychiatric condition, a second and a third subgroup characterized by depression associated with fibromyalgia syndrome, and a fourth group with somatoform pain disorder of the fibromyalgia type. Mild inflammatory processes must be considered as the cause in the first group, while depression is combined with fibromyalgia in the second and the third group. In the fourth group, serious previous or still existing psychological problems or also insufficient coping with illness symptoms must be regarded as the reason for pain chronicity. Group 1 benefits from blocking of the 5-HT3 receptors by means of trospirone, for example. This does not only affect pain chronicity but also the inflammatory process itself. Group 2 and 3 needs antidepressant treatment, whereas the focus should be on psychotherapy in group 4. Groups 1, 2 and 3 will also profit from multimodal physical treatment programs to a certain extent (this applies to group 4 as well). So-called mixed types require a combination of therapeutic measures.

Rheumatol Int. 2007;11:1005-10

Dr. Ferran J. García Fructuoso

## Pseudofibromialgia

- Daniel J. Wallace, propone el nombre de "pseudofibromialgia" para los pacientes con dolor generalizado y trastornos psiquiátricos previos.



### Hypothesis: Bipolar Illness with Complaints of Chronic Musculoskeletal Pain Is a Form of Pseudofibromyalgia

Daniel J. Wallace, MD,\* and Jennifer Gatto, MD†

**Objective:** To present a hypothesis accounting for the differential response of bipolar patients diagnosed with fibromyalgia (FM) to standard therapies, taking into account the statistically significant increase in its prevalence in the syndrome.

**Method:** All articles relating to the leading bipolar illness AND fibromyalgia as well as bipolar illness AND pain were searched using PubMed and Medline since 1966. The prevalence of bipolar illness in our last 100 FM consultations was reviewed.

**Results:** Ten percent of our 100 most recent FM consultations included patients with an established diagnosis of bipolar illness. They had little if any response to traditional FM interventions and appeared to have waxes and wane under prior treatments.

**Conclusions:** Bipolar illness may be associated with a form of chronic, musculoskeletal pain complaints that is not FM. Inquiry into the role that neuroanatomical play in bipolar patients with complaints of musculoskeletal disorders deserves further exploration.

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**Keywords:** fibromyalgia, bipolar illness, pain

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## Dolor crónico y neuroplasticidad

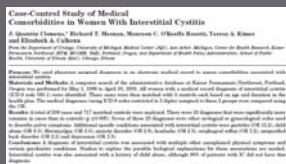
- Los procesos de dolor crónico modifican la estructura del cerebro de forma permanente.
- No son modificaciones específicas de la FM, sino de cualquier proceso de dolor que supere los cinco años.
- Está en debate si estas modificaciones se pueden transmitir genéticamente.



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## Cistitis intersticial

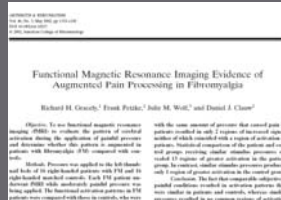
- Micción frecuente, urgencia urinaria, molestia, relación sexual dolorosa, etc.
- Muchas veces confundida erróneamente como una "infección que no sale en los análisis".
- Frecuentemente asociada a la FM y otras situaciones clínicas.



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## El dolor en la Resonancia Funcional

- Las áreas que se activan ante el dolor en pacientes con FM y personas sanas o con otras enfermedades, parecen ser diferentes.



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### Pero debemos ser cautos...

- Porque esto ya ocurrió con el PET.

*Arthritis & Rheumatism (Arthritis Care & Research)*  
 Vol. 51, No. 4, August 13, 2008, pp 513-518  
 DOI: 10.1002/art.23484  
 © 2008, American College of Rheumatology

**Positron Emission Tomography in Patients With Fibromyalgia Syndrome and Healthy Controls**  
 MUHAMMAD E. YENIS,<sup>1</sup> CARTER S. YOUNG,<sup>1</sup> S. ATEGAZ SAIED,<sup>1</sup> JAMES M. MOUNTZ,<sup>2</sup> and BRIAN C. ALDING<sup>2</sup>

**Objective.** Abnormal brain findings have previously been described in fibromyalgia syndrome (FMS) by single-photon-emission-computed tomography. Our goal was to investigate changes in regional cerebral blood flow metabolism in people with FMS by positron emission tomography (PET) using <sup>18</sup>F-fluorodeoxyglucose (FDG).  
**Methods.** Twelve patients with FMS and six matched psychiatric diagnosis and 7 healthy pain-free controls, were studied with FDG-PET in a blind manner. Those with psychiatric diagnosis were excluded. Brain scans were obtained using a PET scanner. Semiquantitative analysis of regional <sup>18</sup>F-FDG uptake was performed in both cerebral and subcortical brain structures.  
**Results.** In the resting state, there were no significant differences in <sup>18</sup>F-FDG uptake between patients and controls for all brain structures measured.  
**Conclusion.** FDG-PET scan findings in FMS were not significantly different from healthy controls. Normal results in our study may be explained by discordance between regional cerebral blood flow and regional cerebral glucose metabolism.

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### FM: una enfermedad compleja

- La respuesta a los tratamientos en la FM es decepcionante, en general.
- Esto parece deberse a la complejidad y heterogeneidad de la enfermedad.
- En enfoque de la FM debe ser integrado, no multidisciplinario.

*Drug Discovery Today Volume 13 Number 104 April 2008*

**Pharmacological treatments of fibromyalgia: Do complex conditions need complex therapies?**

**Kim Lawson**  
 Biomedical Research Group, Staffordshire University Faculty of Health and Wellbeing, City Campus, Stoke-on-Trent ST4 1FL, UK

Fibromyalgia (FM) is a chronic pain condition, with auxiliary symptoms, such as sleep disturbances and fatigue. Although many of the mechanisms of action targeted by the drugs used to treat FM have been focused on the management of single symptoms, drugs (e.g. pregabalin, duloxetine) have now been identified that demonstrate a multidimensional effect. However, such drugs often fail to demonstrate acceptable efficacy in the majority of the patient population. Thus, the mechanisms of action of the drugs studied as treatments for FM are either identifying subgroups within the pathophysiology of the condition or suggesting that a mechanism of action that will offer universal efficacy has, as yet, to be identified.

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### Primera idea central para el futuro

Dejemos de considerar a los enfermos con Fibromialgia como un grupo homogéneo.

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### Diferencia FM / SFC EM

- Diferencias FM / SFC EM en el intervalo QT del ECG durante la realización de la prueba de la mesa basculante.
- Índice de inestabilidad hemodinámica.



*European Journal of Internal Medicine*  
 Volume 19, Number 1, February 2008, pp 1-6

**Original article**  
**Electrocardiographic QT interval and cardiovascular reactivity in fibromyalgia differ from chronic fatigue syndrome**

Johannes E. Nuckels<sup>1</sup>\*, Gábor Szabó<sup>2</sup>, Martina Felber<sup>3</sup>, Hilal Isenhardt<sup>4</sup>, Edmond Sabo<sup>5</sup>, Inbal Ronen<sup>6</sup>

<sup>1</sup>Department of Internal Medicine 4, Justus-Liebig-University and Regeneron GmbH, Faculty of Medicine, Johannes Kepler University Linz, Austria  
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<sup>3</sup>Department of Internal Medicine, Regeneron GmbH, Faculty of Medicine, Department of Internal Medicine, Regeneron GmbH, Linz, Austria  
<sup>4</sup>Department of Internal Medicine, Regeneron GmbH, Faculty of Medicine, Department of Internal Medicine, Regeneron GmbH, Linz, Austria  
<sup>5</sup>Department of Internal Medicine, Regeneron GmbH, Faculty of Medicine, Department of Internal Medicine, Regeneron GmbH, Linz, Austria  
<sup>6</sup>Department of Internal Medicine, Regeneron GmbH, Faculty of Medicine, Department of Internal Medicine, Regeneron GmbH, Linz, Austria

**Abstract**  
 Background: Fibromyalgia (FM) and chronic fatigue syndrome (CFS) frequently overlap clinically and have been considered variants of one disease. We aimed to identify clinical and electrocardiographic (ECG) differences between FM and CFS. In the present study, we evaluated whether FM and CFS can be distinguished by ECG.  
 Methods: The study groups were composed of women with FM (n=17) and with CFS (n=15). The patients were included with a 12-lead ECG. In addition, cardiovascular reactivity was assessed based on blood pressure and HR change after the standing-up test. Results: The average age (SD) in FM was 47 (10) years, 57 (10) in CFS (p<0.001). In the standing-up test, the mean (SD) increase in HR was 17 (10) beats/min in FM and 21 (10) beats/min in CFS (p=0.001). The average QTc at 10 min standing up was 419 (12) ms in FM versus 417 (12) ms in CFS (p=0.001), the HR (SD) at 10 min was 75 (10) beats/min and 91 (10) beats/min in FM. The average HR at 10 min standing up was 112 (10) beats/min in FM and 124 (10) beats/min in CFS (p=0.001).  
 Conclusion: A difference in the QTc interval (QTc) between FM patients and CFS patients was observed. These data may indicate that FM and CFS are separate disorders.

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## El papel de las emociones

- Cómo afrontar la Fibromialgia y el manejo de las emociones, juega un papel fundamental, al menos, por el momento, en la estrategia de tratamiento.
- La vivencia negativa, la tristeza, el pesimismo y la falta de objetivos que permitan ser feliz, dentro de la enfermedad, es una característica de la FM a diferencia de otras enfermedades.



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## El dolor somatomorfo

- El mayor dolor lo experimentan los pacientes con Trastorno Somatomorfo.
- Los grupos de dolor lumbar, FM presentan niveles de modulación del dolor similares.



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## Hay que tomarse en serio la FM



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## El papel del S. Nervioso Autónomo

- Parece existir una respuesta adrenérgica atenuada frente al ejercicio.



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### ¿Sobrecarga tóxica?

- Se analizaron 30 elementos iónicos y minerales en controles sanos y pacientes con FM.
- No hay diferencias en los niveles.

**Trace element pattern in patients with fibromyalgia**  
 Ingegerd Rosborg<sup>a,\*</sup>, E. Hylén<sup>b</sup>, J. Lidbeck<sup>b</sup>, B. Nibblgard<sup>c</sup>, L. Gerhardsson<sup>d</sup>

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<sup>b</sup> Pain Management Clinic, Department of Anesthesiology, SE-221 42 Lund, Sweden  
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Received 10 November 2006; received in revised form 4 May 2007; accepted 10 May 2007  
 Available online 27 August 2007

**Abstract**

An influence of the trace element status in human tissues and body fluids has been suggested as a contributing factor for the development of fibromyalgia (FM). The study compared 18 females with defined fibromyalgia (FM) according to generally accepted criteria from the American College of Rheumatology (ACR). They were compared with 18 females matched for age and geographic location. The concentrations of about 30 trace elements and ions were determined in whole blood, urine and drinking water of all participants by inductively coupled plasma mass spectrometry (ICP-MS) and inductively coupled plasma optical emission spectrometry (ICP-OES).

Significantly higher concentrations in whole blood of Cd, Cu, Fe, Se, Sr and Zn (p < 0.0001) were observed in the FM cases in comparison with the controls. A different pattern was noted in urine with increased urinary excretion of Ag (p < 0.0001) among the FM patients. The urinary excretion of the other elements was of the same magnitude or slightly lower in FM cases in comparison with controls. An analysis of the concentrations of the studied elements in blood and urine were within expected reference intervals in non-occupationally exposed populations, the clinical significance of the differences observed seems to be limited. The element concentrations in drinking water were within present national and international guideline values (EU, WHO) and the concentrations of potentially toxic metals such as e.g. Cd, Hg and Pb were low.

In conclusion, the present investigation could not demonstrate abnormal levels of trace elements in blood or urine of FM patients and, thus, does not support the hypothesis that trace element abnormalities play a significant role in the development of FM.

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### Tratar a la persona, no al dolor

- La combinación de información, soporte psicológico, ejercicio aeróbico en grupo y farmacológico, adaptado a cada persona, es lo que consigue la máxima eficacia en el tratamiento de la FM.
- Un 50% de los casos consiguen normalizar su vida en menos de dos años.

**Case Reviews in Pain**  
**Fibromyalgia: Combining Pharmacological and Nonpharmacological Approaches to Treating the Person, Not Just the Pain**

David C. Turk, Charles L. Mack, Elizabeth Storch, Leslie L. Crofford, and Nathan I. Hahn

**Abstract**

This article is one of a series of "Case Reviews" published in this journal. The purpose of this series is to provide a detailed review of a specific case of pain, with the goal of providing a model for the treatment of pain. The authors describe the case of a patient with fibromyalgia who was treated with a combination of pharmacological and nonpharmacological approaches. The patient's symptoms improved significantly over the course of treatment, and the authors discuss the implications of this case for the treatment of fibromyalgia.

**Keywords:** fibromyalgia, pharmacological, nonpharmacological, treatment, pain.

Dr. Ferran J. Garcia Fructuoso

### Gran impacto económico

- Aunque el impacto económico por paciente es similar al de la artrosis, la pérdida de días de trabajo aumenta el costo de forma muy notable en el caso de la FM.

**Employees With Fibromyalgia: Medical Comorbidity, Healthcare Costs, and Work Loss**

Laura Ann White, PhD  
 Howard G. Berman, PhD  
 Aron Kellermann, MA  
 Andrew Terry, BS  
 David Wadell, MA  
 Rebecca L. Johnson, MS

**Abstract**

The primary objective of the research reported here was to examine the relationship between fibromyalgia (FM) and work loss. The study compared the work loss of employees with FM to the work loss of employees with other chronic conditions. The results showed that employees with FM had significantly higher work loss than employees with other chronic conditions. The authors discuss the implications of these findings for the treatment of FM and the need for workplace accommodations.

Dr. Ferran J. Garcia Fructuoso

### Enfermedades de prestigio

- Los estudiantes de medicina y los médicos jóvenes, prefieren dedicarse a patologías donde la tecnología es máxima.
- El infarto y los tumores cerebrales son las enfermedades "de más prestigio".
- La fibromialgia y los trastornos de ansiedad, la de menos.

**Do diseases have a prestige hierarchy? A survey among physicians and medical students**

Dag Altness<sup>a,\*</sup>, Sissur Westin<sup>b</sup>

*<sup>a</sup> University of Oslo, Oslo, Norway  
<sup>b</sup> Norwegian University of Science and Technology, Trondheim, Norway*

Available online 12 September 2007

**Abstract**

Surveys have shown that the prestige of medical specialities is related to hierarchical status. We investigated whether medical students in the medical curriculum also apply to diseases, and which medical conditions patients perceive as medical prestige.

A questionnaire survey was performed in three samples of physicians and medical students in Norway in 2002. A questionnaire was sent to 507 senior doctors (response rate: 77%), 100 general practitioners (response rate: 67%) and 400 medical students (response rate: 86%). Patients' responses were stratified as a 1-5 scale of the prestige these respondents believe most health personnel would accord to a sample set of 19 different diseases as well as 27 medical conditions.

Both diseases and conditions were clearly and consistently ranked according to prestige. Rheumatoid arthritis, leukemia and breast cancer were among the highest ranked, and fibromyalgia and anxiety disorders were among the lowest. Mental conditions, neurological and chronic diseases were ranked the highest rank, not generally and disease-prevalence the lowest.

The independence of the data in that diseases and conditions associated with technologically sophisticated treatment and invasive procedures in vital organs located in the upper parts of the body are given high prestige scores, especially when the typical patient is young or middle-aged. In the lower end, low prestige scores are given to diseases and conditions associated with chronic conditions located in the lower parts of the body or having no specific health location.

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## Y hemos asistido a la eclosión del QST

- Una prueba que nos permite medir la hipersensibilidad térmica y vibratoria, definiendo el wind-up (sumación temporal), que es característico de la FM.

**PAIN**  
 Brain activity related to temporal summation of C-fiber evoked pain  
 Roland Staud<sup>1,2\*</sup>, James G. Craig<sup>3</sup>, Michael E. Robinson<sup>4</sup>,  
 William M. Paulsen<sup>5</sup>, Donald D. Price<sup>6</sup>

*Temporal summation of "second pain" (TSP) is considered to be the result of C-fiber-evoked activation of dorsal horn neurons, central facilitation. This phenomenon is thought to be involved in the development of chronic pain states and is a key feature of fibromyalgia. The present study was designed to investigate the neural mechanisms of TSP in FM patients and to compare them with those of healthy controls. The authors used a novel paradigm to measure TSP in FM patients and to compare them with those of healthy controls. The authors used a novel paradigm to measure TSP in FM patients and to compare them with those of healthy controls. The authors used a novel paradigm to measure TSP in FM patients and to compare them with those of healthy controls.*

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## El "wind-up", una característica de la FM

- No es exclusiva pero sí muy propia de la FM.
- Se conoce como "fenómeno de sumación temporal del dolor"

**Temporal Summation of Second Pain and its Maintenance Are Useful for Characterizing Widespread Central Sensitization of Fibromyalgia Patients**  
 Roland Staud<sup>1</sup>, Michael E. Robinson<sup>2</sup>, and Donald D. Price<sup>3</sup>

*Alleviating temporal summation of second pain (TSP) results from repetitive stimulation of peripheral C-fibers (C-fib) but is thought to reflect sensitization and facilitation of dorsal horn neurons. The wind-up, both TSP and wind-up, result in short-term enhancement of C-fiber-evoked responses that decay rapidly after the end of stimulation. However, very low stimulus frequencies (0.1 Hz to 0.5 Hz) can increase the enhancement after TSP and wind-up have occurred. This maintained enhancement is termed TSP maintenance (TSP-M), and is a reflection of central sensitization. TSP-M may be especially relevant for chronic pain conditions such as fibromyalgia (FM) and may play an important role in the pathogenesis of FM. The TSP-M of heat-evoked pain is well characterized in human subjects at spinal and brain-related to the upper body. TSP-M at spinal levels related to the lower body has not been previously studied. The present study was designed to study TSP-M at the upper and lower extremities of normal controls (NC) and FM patients and thus characterize their spatial distribution of central sensitization. Twenty-four NC and 24 FM patients were enrolled in this study. TSP-M testing consisted of repetitive heat pain stimulation of the lower extremities of the hands or feet. The subjects used the pain intensity of repetitive heat stimuli as well as 10 and 20 second pain after-effects. The experiment demonstrated significant TSP-M in both NC and FM patients in contrast to NC. TSP-M testing of the distal sites (hands or feet) in FM patients and their TSP-M after-effects (TSP-M-AE) were prolonged. There was, however, no statistical difference between TSP-M-AE testing at the hands or feet in NC or FM patients. These findings demonstrate that central sensitization of the patients is widespread and stable along the spinal neuraxis.*

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**Aplicación del Protocolo de Exploración Cuantitativa Sensorial en la Fibromialgia.** (Quantitative Sensory Testing (QST) in Fibromyalgia)

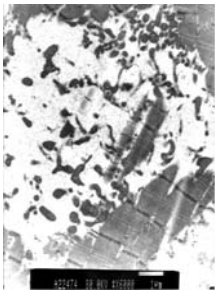
**CIMA**

*Quantitative Sensory Testing (QST) is a standardized method for measuring the sensitivity of the human nervous system to different types of stimuli. It is used to assess the degree of sensory dysfunction in various conditions, including fibromyalgia. The present study was designed to investigate the use of QST in FM patients and to compare them with those of healthy controls. The authors used a novel paradigm to measure QST in FM patients and to compare them with those of healthy controls. The authors used a novel paradigm to measure QST in FM patients and to compare them with those of healthy controls.*

## Segunda idea central para el futuro

De todas las personas que afirman estar diagnosticadas de FM, solamente un 22 % presenta el fenómeno de "wind-up".  
 Aprendamos a diferenciarlas.

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**Fibromialgia asociada a fatiga de alto impacto. Estudio microscópico y enzimático mitocondrial.**

ifir  
CIMA

Este estudio muestra un análisis microscópico y enzimático de fibras musculares de pacientes con fibromialgia asociada a fatiga de alto impacto. Se observan alteraciones en la estructura mitocondrial y en los niveles de enzimas mitocondriales, lo que sugiere un defecto en la producción de energía celular.

Los gráficos muestran la distribución de los tipos de fibras musculares y los niveles de actividad enzimática en diferentes grupos de pacientes.

### Identificación de susceptibilidad

- La FM no es una enfermedad genética ni hereditaria, pero algunos perfiles genéticos favorecen su desarrollo o persistencia e inciden en la respuesta al tratamiento.
- Se trata, en definitiva, de un incremento de los factores de riesgo para sufrir la enfermedad.

**Identification of differential genetic profiles in severe forms of fibromyalgia and chronic fatigue syndrome/myalgic encephalomyelitis: a population-based genetic association study**

Ferran J Garcia Fructuoso MD<sup>1</sup>, Jose Ignacio Lao Vilabona MD<sup>2</sup>, Cristina Santos PhD<sup>3</sup>, Violant Poca Olan MD<sup>4</sup>, Mercedes Fernandez-Soto MD<sup>5</sup>

**Abstract**

**Background:** Fibromyalgia (FM) and chronic fatigue syndrome or myalgic encephalomyelitis (CFS/ME) are believed to be two separate illnesses that are diagnosed using separate but overlapping clinical criteria, in that there are no biological markers for either condition. The symptoms of both disorders can differ markedly in presentation, frequency and intensity and therefore it is necessary to distinguish between the subjects. Since recent studies have begun to determine the genetic background of these illnesses, the authors suggest the use of single nucleotide polymorphism (SNP) analysis to investigate their different genetic profiles.

**Methods:** A group of 800 women (500 FM and 300 CFS/ME) were recruited for the study using the American College of Rheumatology 1990 and the US Centers for Disease Control and Prevention (CDC) research definitions for FM and CFS/ME respectively. The Fibromyalgia Impact Questionnaire and the CDC Symptom Inventory questionnaire were used to define severity subgroups. For each sample, 107 SNPs were genotyped by Illumina™. An independent record

### Recomendaciones EULAR

**ARD ONLINE**

**EULAR evidence based recommendations for the management of fibromyalgia syndrome**

S F Carville, S Arendt-Nielsen, H Bliddal, F Blotman, J C Branco, D Burckha, J AP Da Silva, B Danneskiold-Samsøe, F Diener, C Henriksson, K Henriksson, E Koski, K Longley, G M McCarthy, S Pietrol, M J Pluszczewicz, P Sarzi-Puttini, A Siman, M Spith and E H Choy


Ann Rheum Dis published online 17 Sep 2007, doi:10.1136/ard.2007.071522

**...Inclusion criteria**

Included studies had to be clinical trials using the American College of Rheumatology 1990 classification criteria for FMS to select patients. Studies including patients with Chronic Fatigue Syndrome or Myalgic Encephalomyelitis, were excluded unless they were divided into separate comparator groups for analysis.

### Se inicia un época de ensayos clínicos

- En los próximos años asistiremos a una potenciación clara de la investigación farmacológica en FM que, en parte, ha comenzado ya.
- Su colaboración será muy necesaria para que la investigación avance.
- La adecuada selección de pacientes a incluir en los ensayos será la clave del rendimiento de los mismos.



desde 2002

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