FIRST CONCLUSIONS ON FIBROMYALGIA FROM THE EUROPEAN GRAPHOANALYSIS TECHNIQUES

Francisco Viñals Carrera – Mariluz Puente Balsells And Research Team: Professors- Rosa Ortiz Ciges, Josep Juan Buixeda and Miriam Valldeperes With the supervision of Marcos Faúndez

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Introduction

This research work was carried out from the Graphological Sciences Institute with the AGC and European Graphoanalysis Master program from the BAU (UAB - Universitat Autònoma de Barcelona), and advice from the internationally renowned researcher Professor Marcos Faúndez. Those who subscribe to this article, Mariluz Puente y Francisco Viñals, have developed the final part to reach the conclusion that is put forward. While teachers from the program have participated, an outstanding protagonist is our collaborator in the Basque Country professor Rosa Ortiz Ciges who has been cooperating rigorously these last years with AVAFAS, likewise our collaborators Juan Buixeda and Miriam Valldeperes who also have participated extensively with various associations primarily from Levante such as AVAFI. We give special thanks to Manuela de Madre who helped this research in extraordinary ways, and also our outstanding Graphoanalyst colleague Marisol Gamo who contributed by preparing the drawings and guidelines in the work: "Fibromyalgia, Back Pain: Two Ways to Express Stress and Suffering" (Fibromialgia, dolor de espalda: Dos maneras de expresar el estrés y el sufrimiento) by Fernando Martínez-Pintor and Núria Durany Pich, Cultiva Publishing Company, Study Collection, Number 3, 2008; in addition to her contribution to the initial research with the fibromyalgia associations and the development of a new computerized Graphoanalysis table with the Vels and TA systems that takes into account the parameters of anxiety. This is a very useful element that has been incorporated into Marisol Gamo's initiative being that she is the author of this innovation.

Description of the disease and applicable therapies according to various doctoral theses and academic-health authorities.

Fibromyalgia is a disease that is characterized by generalized, persistent, chronic and idiopathic (inexplicable) pain, which is associated to numerous symptoms – variable according to the patient – in a greater or lesser degree of severity that affects the patient's quality of life at a physical, cognitive and emotional level, interfering with the patient's family, professional and social life.

Below are the preliminary Criteria for the Clinical Diagnosis of Fibromyalgia established by the American College of Rheumatology in primary and specialty care, without requiring physical examination or examination of sensitive points that allows the assessment of the severity of symptoms (Wolfe, 2010).

Observe that the criteria has been expanded up to the present day since the recognition of the syndrome in 1990 with qualifying criteria based on generalized pain, (defined as axial pain, right and left side pain, and upper and lower segment pain) and with sensitivity to acupressure in at least 11 of the 18 specific sensitive points.

Widespread Pain Index (WPI)

The WPI value ranges between 0 and 19

Waist Left Scapular
Waist Right Scapular
Left Upper Arm
Right Upper Arm
Left Lower Arm
Right Lower Arm
Left Buttock
Right Buttock
Left Upper Leg
Right Upper Leg
Left Lower Leg
Right Lower Leg
Right Lower Leg
Left Jaw
Right Jaw
Chest (Thorax)

Symptom Severity Score – SS Score SS-Part 1

The SS value-part 1 ranges between 0 and 9

1.- Fatigue

Abdomen Neck Upper Back Lower Back

- 2.- Non -restorative sleep
- 3.- Cognitive disorders

Symptom Severity Score – SS Score SS-Part 2

SS- Part 1 + SS-Part 2 = the scoring is between 0 and 12 points

Muscular pain

Fatigue/exhaustion

Problems with comprehension or memory

Irritable Colon Syndrome

Muscular weakness

Headaches

Cramps in the abdomen

Numbness/tingling

Dizziness

Insomnia

Depression

Constipation

Pain in upper abdomen

Nausea

Anxiety

Chest pain

Blurred vision

Diarrhea

Dry mouth

Itching

Noise when breathing (wheezing)

Raynaud's Phenomenon

Rash

Ringing in the ears

Vomiting

Stomach acid

Oral thrush (ulcers)

Loss or change in taste

Convulsions

Dry eyes

Shortness of breath

Loss of appetite

Skin eruptions/rash

Sun intolerance

Hearing disorders

Frequent bruising (hematomas)

Hair loss

Frequent urination

Painful urination

Bladder spasms

The key characteristics of the disease, associated to pain, is fatigue, impaired mobility, rigidity, poor mood, anxiety, depression and sleep alterations which cause a psycho-social impact.

Of unknown etiology, studies consider the possibility of a genetic base (since in many cases family members suffer from disease), and an alteration in the processing of pain at the level of the central and peripheral system, one questions whether it is a matter of neurotransmitters, due to finding a decrease in serotonin levels (Triviño, 2009) (Mañez, 2005).

New brain scan techniques – functional magnetic resonance imaging (fMRI) have provided new data on the pain experienced by patients with fibromyalgia (López 2010), verifying that their sensory processing and cerebral cognitive is abnormal, the same as their "early sensory coding", their "later cognitive evaluation of redundant non-nociceptive tactile information" and their "affective modulation of early somatosensory components". Even the cerebral processing of those words related to "pain" is abnormal (Sitges, 2009). Although chronic pain is present in both patients with musculoskeletal pain and fibromyalgia (Sitges, 2009) it differs in the symptoms and characteristic syndromes, resulting in a poorer quality of life for fibromyalgia patients (Gil, 2008).

Currently, in the absence of an effective remedy for recovery, as the most effective preventive/palliative solution a multifaceted intervention (Viñolo, 2009) based on programs of physical and educational rehabilitation and psychological and pharmacological treatments is advised.

Fibromyalgia determines a deterioration of kinetic parameters of locomotion; one observes in the patients a greater instability, asymmetry and lack of bilateral coordination in gait in respect to those who are non-affected. This is a result of a bradykinesia, cognitive alterations due to the disease and changes in muscular recruitment patterns in the gait. This locomotive difficulty is compounded by the fact that many patients have a predominance to be overweight and a sedentary lifestyle that requires a shift towards physical exercise (Heredia, 2009) (Viñolo, 2009).

Fibromyalgia patients have a reduced functional capacity; it has been proven that the strength of their interior train and aerobic capacity is in inverse relation to their pain, which makes a personalized physical exercise program necessary. In this sense, several lines of research have checked the results obtained from different types of exercises, such as biodance, Tai Chi, (Carbonell, 2010), controlled exercises in a pool of hot water (Thomas, 2005) as well as effective doses of the activity in order to implement them in therapies. The conclusions were that in all cases a better performance is obtained with a combination of aerobic exercises, together with those for strengthening muscles and increasing range of motion, and above all a long-term program (Sañudo, 2009). Physical exercise brings about a significant improvement in physical function, psychosocial aspects and pain.

Psychological intervention in the disease is basic and psychotherapeutic approaches are varied. In Medical Psychology, the biopsychosocial model advocated by Engel exceeds the classic biomedical model that analyzes the disease from the organizational point of view only, but rather instead, delves into the psychological and

social background of the disease. From this perspective, group psychological intervention on the basis of Goldfried's Psychotherapy Integration brought about a noted improvement in family and social climate, as well as a reduction in the levels of anxiety and depression, allowing the patient to obtain some strategies for coping with the disease that he/she previously lacked; although no differences in the subjective perception of pain were observed (in respect to the control group) (Cecchini, 2005).

Thus, expressive movement therapies, as for example dance movement therapy, go beyond a simple table of physical exercises; they seek to establish a communicative channel – creative, free and spontaneous – for the patient with his/her pain through the exploration of expressive movement of his/her body, which would generate changes in the patient's psyche. In the words of Dr. Sarah Rodríguez, "the patients seek to understand the metaphor of their speech of pain, delving deep into who they are, who they want to be, who they believe that they must be". Here they apply the psychological methods of Marian Chace (dance movement therapy) and the existentialist orientation of Irvin Yalom. (Rodríguez, 2004).

Studies show that the patients experience fibromyalgia with stressing emotional factors such as anger, sadness, fear, guilt, shame and low self-esteem that bring humiliation, loss self-reproach and social failure (Tobo, 2007). In fact, fibromyalgia was classified along with other diseases under the generic name of "syndromes associated with stress" (García, 2007). High susceptibility to stress is considered a key element for the chronicity and progression of the disease, and is in direct relation to the system of beliefs and values of the patient whose pattern of tradition and benevolence is the generator of said stress (the more social and personal requirements that the patient has, the greater the stress), and it requires a flexible therapy in regards to the expectations created by their beliefs and values (Tobo, 2007), since it has been proven that a personality oriented to its own interests improve the performance of the treatment according to that reflected in the doctoral research of Sara Lera (2006). One of the objectives of this research consisted of checking the effectiveness of cognitivebehavioral psychological therapy; with the result being that it was not required in all cases since it did not add a significant improvement to the multidisciplinary treatment consisting of a medical follow-up, educational programs about the disease and a personalized physical rehabilitation program which did get good patient response.

However, in another doctoral research (Merayo, 2008) that compares the results between two models of psychological intervention, one a clinical type and the other being of psycho-social orientation, relative to the perception of pain, quality of life, and emotional distress, cognitive behavioral intervention was determined to be the one that works more positively in patients. And concluding in that same line (Garra, 1997), a significant improvement was noted in pain, fatigue and rest from 6 months on and in rigidity after 3 months of cognitive-behavioral treatment.

The relevant abnormality that occurs in the emotional context of the fibromyalgia patient has been studied (López, 2010) (Sitges, 2009); for example the depression that is experienced with the disease is indicative of the level of adaptation to it, i.e. the better the coping, the less depression (Mañez, 2005). Among the studies that correlate these emotional variables (anxiety and depression), and personality traits, the doctoral research of Penélope Infante (2002) is noteworthy. This reveals the prevalence of depressive symptoms, anxiety and psychiatric comorbidity in relation to neuroticism, greater avoidance of harm and less novelty seeking, paying attention to the results obtained in Cloninger's Tridimensional Personality Questionnaire (1987).

EXTRACT

"The proposal of this study was to evaluate the relationship between the emotional variables (depression and anxiety) and personality traits in patients with chronic pain. A sampling of 101 patients with chronic pain of varying etiology who attended the pain clinic at "Parc Taulí" Hospital in Barcelona was evaluated. The information was obtained at two different times, at the time of the interview and at the 15-day follow-up. The instruments used were: Beck's Selfapplied Questionnaire for Depression (Beck et al. 1961), State and Trait (STAIE-R) (Spielberger et al. 1973), Personality Questionnaire for Adults (EPQ-A) (Eysenck y Eysenck, 1986), Temperament and Character Inventory (TCI) (Cloninger y cols., 1994), Goldberg's General Health Questionnaire (GHQ) (Lobo, 1986) and three Visual Analogue Scales for Follow-up (on intensity of pain, mood state and anxiety symptoms). Our results indicated that patients identified the intensity of their pain in mid-levels. In the sampling we found a high prevalence of depressive symptoms, anxiety and psychiatric comorbidity. Results concerning the EPQ showed a statistically significant relationship between neuroticism with the presence of symptoms of depression, anxiety and psychiatric comorbidity. With the TCI, the results showed significant and high scores in Avoidance of Harm and low scores in Novelty Seeking. Lastly, significant differences between the sexes were observed. The women obtained higher scores in depressive and anxiety symptoms than the men. Also, the women obtained a statistically significant correlation between the intensity of their pain with higher scores in neuroticism and lower scores in Extraversion than the men.

It is precisely and uniquely the Harm Avoidance dimension in Three Dimensional Personality Questionnaire (TPQ) that shows values significantly different from the group of patients with fibromyalgia and the control group which could be considered as a highly predictive value of the disease and in relation to serotonin (Mañez, 2005).

For Cloninger, novelty seeking is related to low basal dopaminergic activity; the harm avoidance with high serotonergic activity, and the reward dependence is correlated with low basal noradrenergic activity (C. R. Cloninger 1986). "A unified biosocial theory of personality and its role in the development of anxiety states". Psychiatric Developments 4 (3): 167–166. (Dolcet, 2006). Reference is made here to the test of temperament and character that is a subsequent derivation of the Tridimensional Personality Questionnaire (TPQ) and from here we go to the next dimension that is referred to – persistence.

(Dolcet, 2006): "For Cloninger the temperament dimensions would be predispositions that remain stable throughout the development, the majority of them being inherited and not modified throughout the learning processes. These dimensions would be: Harm Avoidance, Novelty Seeking, Reward Dependence and Persistence. The Harm Avoidance would be a reflection of the activity of the Behavioral Inhibition System (BIS), or punishment system according to Gray's theory. This system is related to anxiety and the serotonin activity from the septohypocampic system".

According to Aida Pascual's doctoral research (2006) there are statistically significant differences between fibromyalgia and somatization disorders with respect to cognitive functions: memory and attention. In Fibromyalgia, pain, depression and anxiety would have a direct influence on cognitive dysfunctions; there are common complaints from patients about their forgetfulness, and their focus on the pain reduces their cognitive performance.

Studies show that fibromyalgia in men causes less impairment than in women (Heredia, 2009) (Matarán, 2008); and Lera's doctoral research (2006) shows the social demographic profile corresponds to women of low or medium-low social economic status, with primary school studies, who in the majority are working as laborers.

Along this line, Vinolo (2009) says "a middle-aged housewife, married with two children living in the city [urban type housing and stress are the variables that relate negatively to quality of life] with a basic education level and a monthly income between 600 and 900 euros and to whom it took over 5 years to diagnose the disease".

A pharmacological treatment has little value by itself in respect to effectiveness in relation to other types of intervention, obtaining the poorest results in comparison to cognitive behavioral therapy and personal management of the disease (Merayo, 2008). In a controlled clinical trial with tenoxicam and bromazepam, an improvement was found in only 30% of the cases, a non-significant result with respect to the placebo group, and disregarding what patients would respond to the treatment (Quijada, 1997).

Other treatments that are proposed for the improvement of the fibromyalgia symptoms and which have been the subject of doctoral research are for example, drinking red wine in moderate doses that according to the doctoral student Trivino (2009) reduces the sensitive points to pain, sadness, depression, anxiety and sleep disturbances; or the application of electrodes as electromyographic biofeedback training that is frequently applied in sports medicine and that would produce an improvement in the long term as a result not so much from the control of muscle tension, but rather from the placebo effect (Gorriz, 2003); as well as craniosacral therapy which improves the post-effort physical discomfort in fibromyalgia, obtaining a good response for muscular and joint pain, cephaleas, restful sleep mood and physical function (Matarán, 2008).

Introduction to the new typology of levels of Wallner et al. to establish points of graphonomic identification with fibromyalgia

Teut Wallner, Schulze Egon and Gosemärker Rosemarie proposed a graphological typology with six levels based on the expression of tension observed in handwriting. It is an advanced system that develops the Degrees of Pophal but transcends cerebral-physiological explanations; additionally it corrects the need for clarification between numbers 4 and 5 that in Pophal is suggested basically by an organic differentiation. In the Wallner system instead of having Degrees I, II, III, IVa IVb and V, there are levels: 1, 2, 3, 4, 5 and 6. Moreover, the Wallner system brings Grade 1 and 6 together; so instead of representing the grades linearly, they are placed within a circle, with the two ends being contiguous, i.e. the first and the last. The Switzerland School system has

been integrated into the Training Course for Psychologists of Handwriting in the University of Zurich, with Dr. Anne Marie Nauer being the teacher of that specialty. Dr. Nauer was invited to the BAU to explain this method, which has been adapted by us in the interpretations of our European Graphoanalysis school, utilizing the base and doctrine accepted by Pophal that included Vels, as well as our experience in the temperamental and characterological points of correlation these last years of comparative studies with the Transactional Graphoanalysis chart.

Outline of tension levels in accordance with Wallner, Schulze, Gosemärker and our own interpretation from the experience of correlations with the Transactional Graphoanalysis System which takes into account the non-organic base of Pophal and A. Vels graphoanalytical adaptation.

Level 1

Absence of Tension. Passive - instinctive coordination. The outside force is that which conditions the movement and also the response to the tension by absence of internal tension. "The cord without imparting force on itself, adapts to the terrain or the orography where it is situated." (Passive adaptation, need for intervention from the exterior to act.)

Level 2

Distention by spontaneous movement. Active-instinctive coordination. Natural fluidity of movement as independent energy. Soft control, almost unconscious of tension. "One imparts energy on the cord without putting pressure on it in any sense, but rather so that it expands according to its own force and plays with the exterior force that it finds, causing lassoes, garlands, waves, etc." (Development of expressivity.)

Level 3

Awareness in the distribution of force. Conscious coordination by willpower. Is able to exercise a certain control on tension. "Imparts a movement and strength to the cord so that in its light tension it is flexible enough to impart an adaptive change on the fly." (Effectiveness and efficiency in the practical applicability.)

Level 4

Tension that controls the movement. The tension dominates causing a mechanical coordination. Control by clock instead of rhythm. "The cord is totally tense, straight and supports pressure." (Firmness-constant resistance.)

Level 5

Tension begins to decrease and alter. The excess causes bad coordination. Certain movements solidify, which causes others to become unbalanced with the appearance of firm strokes and loose strokes. Arrhythmic movement for the first signs of irregularity in the tension. It could be considered the initial response to an excess of stress. (Errors or mistakes in tension due to an excess of continuity in the tension, can alternate sudden movements with others that are weak.)

Level 6

Uncontrolled tension. Instability causing impossibility of coordination. Strong irregularities indicative of a serious condition. The tension is as "when the cord breaks" and all control has been lost. (The lack of control is clearly pathological by the anarchy of the tension, which alters the parameters of the majority of the graphic aspects.)

Comparative analysis of handwriting samples. First observations on graphemic matches in fibromyalgia.

In the most qualitative samples that we could examine confidentially thanks to Marisol Gama, we seemed to already detect a certain rigidity inherent to the "Father " of TA or of the Normative (the state that even in normalcy tends to Obsessive-compulsive – Millon type). These samples were not like those from Josep Juan Boixeda and Miriam Valldeperes that reflect an advanced state, on the contrary, they would correspond with those of an initial state, very linear and concerned about the general order, tending to preserve firmness, and to not lose "composure".

After this initial analysis of the samples and the first ones that had been provided by Rosa Ortiz Ciges also, we already suspected that Fibromyalgia was difficult to locate by signs or small components, which sometimes can appear or merge with others, but as they are common to other disorders it is not easy to assign them to one medical condition or another. Nevertheless, perhaps the appearance of these signs in handwriting with this type of rigidity or similarity – self-control of movement – quest and constant application of order – possibly could bring us closer to the identification of the disease.

In fact this type of character could explain that when faced with an excess of frustration somatization is produced (with special attention to back pain: feeling of excess weight of responsibility being that they tend to blame themselves if everything does not turn out the way they believe it should) which in a chronic state can result in fibromyalgia. In fact life today favors this, as events happen too quickly and one is required to continually adapt to change, which clashes with the need for consistency and regularity of this typology.

The temperamental and characterological predominant also coincide in the research of Cloninger et al. with vector "L" (Lymphatic temperament) reinterpreted by said author already not by the moods of the authors derived from Hippocrates but rather from neurotransmitters, and with their new description as would be that of harm avoidance. His conclusion also strengthens our observation with the TA Chart being that the "Father" (Transactional Analysis) is homologous to the phlegmatic character with its normative tendencies of complying with principles and rules, constituted and based on the "Lymphatic" temperament, normally complemented with bilious.

Despite everything, the three possible stages that go from excess of order, passing through losing the way and reaching the loss of control of tension, suggest progressively to us a collation with Wallner as derived currently from Pophal, and indeed, the three levels correspond perfectly with the process observed in the samples examined.

Results and conclusions from the graphoanalytical research on fibromyalgia

As we have commented, it was odd that the samples studied by Josep Juan Buixeda and Miriam Valldeperes were not like those from Marisol Gamo, but rather responded to the most serious level, where the most acute effects of disease would be evident.

That is why the observed graphonomic characteristics are appropriate of level 6 of Wallner et al., although in the set of samples, especially with those from Rosa Ortiz Ciges by being the majority and meeting the conditions of the three types, we were able to establish that both the predisposition and the initial extent of the disease are taken into account in level 4 and we could say that it is in level 5 when it is decisively rooted, leaving level 6, as we have said, for the most affected degree.

Of the 80 samples studied (among those from Rosa Ortiz Ciges, Josep Juan and Miriam Boixeda Valldeperes, Marisol Gamo and some other specific samples that we also received in the last two years), we could conclude that:

1) 30% of the handwriting samples meet the graphonomic characteristics of **Level 4** of Wallner et al. (disease in initial process or with possibilities of compensation).

Dominant graphonomics (Graphoanalysis Method):

Structured

Sober (without disproportions)

Precise

Restrained

Narrowed

Small

Accented precision in flexion movements

Half angular writing

Arched

Rectilinear

Rigid

Tendency for symmetry

Vertical direction

Grouped

Steady

Methodical

Long lower extensions

Angular base of lower extensions

Triangular movements in upper and lower areas

Double looped ovals

Harpoons

2) 60% of the handwriting samples meet the graphonomic characteristics of **Level 5** of Wallner et al. (disease rooted; there already is a certain difficulty to combat it).

<u>Dominant graphonomics (Graphoanalysis Method):</u>

(Combination of rigidity with weak, loose movements – impression of "hesitant stiffness")

Excessive spacing between words (bags, "ghosts", "rivers", etc. due to anguish-anxiety)

Constraint

Narrowed

Altered dimension, discontinuous (circumstantial enlargement due to the "clip" effect commented on by Josep Juan Boixeda and Miriam Valldeperes)

Interruptions

Angular handwriting

Blocked pressure

Inhibited

Dry

Slow

Rigid lines

Separate

Frequent jerks

Irregularities that contrast with rigidity (impression of vacillating "stiffness")

Touchups

Double turned ovals

3) 10% of the handwriting samples meet the graphonomic characteristics of **Level 6** of Wallner et al. (Disease in advanced stage, with serious effects).

Dominant graphonomics (Graphoanalysis Method):

(The entire writing gives the impression of a tense, uncontrolled and inharmonious writing environment due to the lack of order and coordination of the movements.)

Uncontrolled (difficulty in the margins, confused spacing, other irregularities with bags, rivers, ghosts, etc.)

Rushed and impulsive (the letters clash with other letters in the words)

Diverse anomalies in the pressure: displaced writing, spasmodic, sharp or massive, contorted, dashed, tremulous

Mixture of sharp angles with thread-like movements. Deformation of ovals

Uneven speed

Uneven inclination, often inverted

In continuity, due to the tension of the movements the writing is shaky, uneven or has poorly linked cohesion (fragmentations, lapses of cohesion)

Among the most common peculiarities, as already pointed out a few years ago by Marisol Gamo, we confirm that the level of anxiety-anguish is quite high, likewise the depression as noted by Rosa Ortiz Ciges and also the stress indicated by Josep Juan Boixeda and Miriam Valldeperes. We found it especially interesting that many of the affected signatures have strikethroughs or are written with a predominance of angles that go to the left. This would support the theory that besides being quite normative people in the sense of wanting to comply and adapt to the learned regulations and rules, they demand so much from themselves that they reach the point of feeling unsatisfied and have self-recrimination. In spite of everything, Graphoanalysis cannot be defined in this graphopathological specialty of medical science itself; rather it is an instrument of support and orientation for the corresponding medical team.

There are many writings that have Wallner's level 4. Therefore we must not suspect they may lead to fibromyalgia, in any case, at least for the moment what we can affirm is that in those cases medically diagnosed as fibromyalgia we detect these graphological features with the graphoanalytical type of tension or resistance of Wallner et al. as an advanced offshoot of Pophal's degrees of tension-strength. We agree with the psychiatrists and clinical psychologists that a strong trauma or a continuous situation of stress can trigger in this type of normative and self-demanding people who apply rigidity to themselves and their conduct this type of disease. If we are allowed to speculate intuitively outside of that which is scientifically observed in the writing, we dare to suggest that the disease has been produced as a somatization reaction to a problem of great psychological pressure. It is as if the person feels deeply frustrated to find that after perfectly complying with the diagrams and what is expected from him/her, the outside world does not respond in a gratifying sense, not even in a reassuring sense; but rather the person gets negative inputs that he/she does not understand. Maybe for that above and our psychoanalytical training we would propose a combined therapy, but without discarding psychoanalysis to unearth some elements of the psychological script that causes the vigilance of the Super – I or "Father" system (Transactional Analysis) and which would be appropriate to compensate with the incorporation of new permissions to the subject, making the person be able to question his "dogmas" or "prejudices" which are directed against him/herself, so that the patient is able to develop flexibility. Likewise from the psychophysical point of view, dance and sweeping exercises of soft movements, which work in reverse, from the physical to the psychic, may also be effective in a combined medical therapy.

With this application, Graphoanalysis complements the medical diagnosis and at the same time the orientation.



MASTER'S DEGREE IN EUROPEAN GRAPHOANALYSIS

January, 2015

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2008-2009, studies in graphology at the Universitat Autònoma de Barcelona, a public university, will conform to the Bologna agreement and will now offer ECTS credits (*European Credit Transfer System*),, thus complying with the new European university-studies framework.

The heads of the programme are Francisco Viñals Carrera, Mariluz Puente Balsells and Jose Llobet Aguado. The courses will be taught by an outstanding team of academics and professionals, including experts from Spanish public-security forces and from medical and educational institutions

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EDIFICI HISTÒRIC << Casa Convalescència>>
c. Sant Antoni Mª Claret, 171 - 08041 Barcelona (SPAIN)
TELF: 93. 581.71.77 - FAX: 93.323.24.71
WEB SITE: http://www.grafologiauniversitaria.com/

rosamaria.custo@uab.cat