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## CASE HISTORY

### Therapeutic Options for Fibromyalgia

An integrated therapeutic strategy including hormone restoration resolves severe fibromyalgia symptoms in a 55-year-old woman.

By Dr. Sergey A. Dzugan

While chronic, widespread musculoskeletal pain (fibromyalgia) has been recorded since antiquity, only in the past two decades have researchers conducted significant medical and experimental studies on the subject. According to recent findings, 1.3-4.8% of the populations of Western industrialized nations suffer from fibromyalgia, and 80-90% of those affected are women.<sup>1,2</sup> Approximately 6 million Americans (including 4 million women) suffer from fibromyalgia,<sup>3</sup> which most commonly occurs between the ages of 30 and 60 years.<sup>4</sup>

Fibromyalgia is characterized by generalized joint and muscle pain without physical abnormality, and involves tenderness in certain areas of the body. The patient may also display stiffness, fatigue, sleep disturbances, cognitive impairment, sensitivity to noise and stress, menstrual disorders, irritable bowel syndrome, allergies, migraine, and depression. Physical examination and laboratory testing generally do not reveal any abnormalities.<sup>5-7</sup> The American College of Rheumatology developed the diagnostic criteria for fibromyalgia, which include diffuse soft tissue pain for at least three months' duration and pain when pressure is applied to 11 or more of 18 specific points on the body.<sup>5,8</sup> The etiology (cause) of fibromyalgia is not known.



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Common medical treatments for fibromyalgia include one or more of the following: antidepressants, nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics (painkillers), psychoactive drugs, physical therapy, gentle stretching, exercises, stress reduction, cognitive-behavioral therapies, and lidocaine injections with or without hydrocortisone.<sup>9,10</sup> Treatment of fibromyalgia, whether pharmacological or psychological, remains problematic, primarily symptomatic, and unsatisfactory overall. The medical prognosis for fibromyalgia is not favorable.<sup>11</sup>

Fibromyalgia is associated with significantly diminished quality of life and substantial financial costs.<sup>8</sup>

The following detailed patient case report highlights a novel integrative treatment program that was highly successful in treating this patient's severe fibromyalgia.



### BACKGROUND

A 55-year-old woman suffering from fibromyalgia presented in June 2002. At the initial interview, her complaints included generalized pain, migraine, fatigue, poor energy level, severe depression, panic attacks, suicidal thoughts, insomnia, severe short-term memory difficulties, weight gain, constipation, and poor libido and sex drive. The patient reported that upon waking, she felt sore, stiff, and as though she never really slept. She described her life as filled with relentless pain and a struggle with constant fatigue and depression.

She was taking prescription medications for pain, depression, panic attacks, insomnia, and hot flashes (various analgesics, Wellbutrin®, Klonopin®, Ambien®, and Activella®). Over the past 15 years, the patient had tried many forms of treatment, including physical therapy, massage, acupuncture, chiropractic, and exercise, with little or no improvement of her fibromyalgia symptoms. She was moderately overweight (standing five feet, five inches, and weighing 168 pounds) and had had no menstrual cycle for the last 13 years. She had a history of premenstrual syndrome. She did not use tobacco or alcohol.

A once healthy woman, the patient developed pain in the cervical and lumbar regions of the spine more than 20 years ago. The condition started quite typically, with mild muscle pain accompanied by generalized aches and stiffness, followed by severe fatigue, poor short-term memory, irritability, and problems with bowel movements. She felt constant stress and usually woke up in the morning feeling extremely tired. Over the course of a few months, the patient developed insomnia, migraine, and severe

depression. Diagnostic tests showed no evidence of joint damage or disease, nor did her medical history reveal any precipitating factors. She had no family history of fibromyalgia or migraine. Her pain was constant and severe, and interfered with daily function.

For months, the patient sought treatment from multiple specialists, who told her that her physical pain was psychiatric in origin and not related to specific physical morbidity. A rheumatologist diagnosed her condition as fibromyalgia. Dismayed over a lack of progress with her treatment, the patient unsuccessfully attempted suicide by overdosing on medication in 2000. After that, she was placed on several antidepressants, which were of marginal help in controlling her depression, panic attacks, and suicidal thoughts, but did not adequately relieve her pain.

## DIAGNOSIS AND TREATMENT

We suspected that the patient's symptoms were related to hormonal deficiencies resulting in neurohormonal and metabolic imbalance. The results of initial blood tests confirmed our suspicions, revealing that the patient had low levels of total estrogen, progesterone, and pregnenolone, as well as a "male dominance" pattern of relatively high testosterone in relation to estrogen and progesterone.

The patient's hormone levels were as follows (reference ranges shown in parentheses):

Hormone	DHEA-S	Pregnenolone	Total estrogen	Progesterone	Total testosterone
<b>(Reference range)</b>	(65-380 ug/dL)	(10-230 ng/dL)	(61-437 pg/mL)	(0.2-28 ng/mL)	(14-76 ng/dL)
<b>Patient's result</b>	100	32	59	0.6	50

Based on these findings, the patient was treated with the following:

- pregnenolone: 300 mg taken in the morning.
- DHEA: 100 mg taken in the morning.
- 7-keto DHEA: 70 mg taken at noon.
- Triest gel (containing a 90:7:3 ratio of estriol, estradiol, and estrone): 1 cc in the morning on days 1-14, 0.8 cc in the morning on days 15-25, and 0.4 cc in the morning on the remaining days of each month.
- progesterone gel (50 mg/ml): 0.8 cc in the morning on days 1-14, 1 cc in the morning on days 15-25, and 0.6 cc in the morning on the remaining days of each month.
- testosterone gel (50 mg/ml): 0.2 cc in the morning, every other day.
- Nutribiotic® MetaRest® (containing 3 mg of melatonin, 250 mg of kava root extract, and 10 mg of vitamin B6 per capsule): two capsules taken at bedtime.
- NutriCology® ProGreens® (containing green foods, plant fibers, bioflavonoids, herbal extracts, and probiotics, including 3.5 billion Lactobacillus group, 1 billion Bifidobacterium group, and 0.5 billion Streptococcus thermophilus per scoop): one scoop taken in the morning.
- Alacer CMA™ Calcium Magnesium Ascorbate (containing 1860 mg of vitamin C as mineral ascorbates, 100 mg of calcium, 40 mg of magnesium, 10 mg of vitamin B6, 72 mg of magnesium citrate, and 200 mg of lemon and orange bioflavonoids per two tablets): two tablets taken at bedtime.
- vitamin C as sodium ascorbate: one tablet taken three times a day.
- glucosamine sulfate: 2250 mg taken in the morning.
- Douglas Laboratories® RheumaShield™ (containing 10 mg of undenatured type II collagen and a proprietary blend of standardized devil's claw root extract and bromelain per capsule): one capsule taken at bedtime with eight ounces of water.

In addition, the patient discontinued use of the prescription drug Activella® shortly after beginning this program. No dietary modifications were initiated.

Within the first two months, the patient began to show signs of improvement. At a follow-up visit one month after beginning treatment, she said her migraine was less frequent and severe, and her backaches, joint pain, and neck pain seemed to be significantly diminished. Her fatigue was improved slightly and her depression diminished somewhat. She reported that her sleep was improved significantly and that she felt more rested upon waking. She began to slowly decrease her sleep medication. After the first month of treatment, she felt significant enough improvement in her fibromyalgia symptoms to stop taking Wellbutrin® and Klonopin®.

Because the patient still complained of severe short-term memory problems and constipation, we recommended several additions to her program. To support healthy memory, we suggested phosphatidylserine capsules, 300 mg to be taken in the morning. To restore healthy gastrointestinal function and support sleep, we added Longevity Science® MagnaCalm (containing 420 mg of magnesium citrate per scoop), two scoops to be taken at bedtime. We suspected that the patient may have had altered intestinal flora due to her history of prescription drug use. To support healthy microflora of the gastrointestinal tract, we recommended increasing the dose of ProGreens® to one scoop taken twice a day, and initiating a one-month parasite-cleansing program using Unicity™ Paraway® Pack, a blend of herbs, fiber, and fructooligosaccharides. To further support optimal gut flora, we recommended that the patient decrease her dietary consumption of sugar. Additionally, we added Life Extension™ Natural Sex for Women (containing herbal and homeopathic extracts to support sexual vitality), two tablets to be taken in the morning. The patient also began to take HGH (human growth hormone) of 0.5 IU daily, six days per week. During the next month, her sleep and constipation problems resolved, her energy level increased significantly, and her depression was improved greatly. In addition, her sex drive was restored completely.



After four months of treatment, the patient reported that the majority of her symptoms had improved or disappeared. She no longer complained of fibromyalgia, migraine, depression, or fatigue. According to her husband, she was feeling “999% better” than she had in the past 20 years. A follow-up blood test showed marked improvements in her hormone profile (reference ranges shown in parentheses):

Hormone	DHEA-S	Pregnenolone	Total estrogen	Progesterone	Total testosterone
<b>(Reference range)</b>	(65-380 ug/dL)	(10-230 ng/dL)	(61-437 pg/mL)	(0.2-28 ng/mL)	(14-76 ng/dL)
<b>Patient's result</b>	428	80	249	5.4	62

After more than two years of treatment, the patient is free of fibromyalgia symptoms and her other major health complaints. She exercises regularly, eats a balanced diet, and has lost five pounds. She remains on hormone-restorative therapy and continues taking a dietary supplement regimen. The patient was able to resume her normal daily activities, including full-time work in the family business.

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#### COMMENTARY

In the US, fibromyalgia is one of the most common reasons for referral to a rheumatologist.<sup>12</sup> For several centuries, muscle pains have been known as rheumatism and subsequently as muscular rheumatism.<sup>13</sup> Fibromyalgia is now a recognized clinical entity causing chronic and disabling pain. The classification, causation mechanisms, clinical course and outcomes, and management strategies of fibromyalgia are controversial. Because no defined pathology or specific etiology has been found, fibromyalgia may be considered a dysfunctional disorder.<sup>14</sup>



Many hypotheses have been advanced in the medical community concerning the etiology of fibromyalgia. Theories involving the central and peripheral nervous system, and the immunological system, are frequently aired. Current research is investigating whether alterations in the regulation of neurotransmitters—particularly serotonin, norepinephrine, and substance-P—may play a role in fibromyalgia. Other researchers are examining the relationship of immune function, sleep physiology, and hormonal regulation with fibromyalgia. A defective neural feedback loop mechanism or other abnormal neurophysiology may underlie the pathophysiology of fibromyalgia. The hypothalamic-pituitary-adrenal (HPA) axis appears to play an important role in fibromyalgia. Both hyperactivity and hypoactivity of the HPA axis have been reported in patients with fibromyalgia.<sup>15,16</sup> There may also be altered autonomic nervous system function in patients with fibromyalgia.<sup>17</sup>

Some scientists have hypothesized that fibromyalgia is caused by an irreversible disturbance of the neuroimmunoendocrinological system.<sup>18</sup> We partially support this hypothesis and believe that fibromyalgia patients have a dysfunction of the autonomic nervous system as a result of hormonal deficiency associated with a loss of sensitivity of cell membranes to hormonal impulses. We do not agree, however, that this condition is “irreversible,” because fibromyalgia symptoms have disappeared quite often in patients treated with hormone-restorative therapy. Our hypothesis as to what causes fibromyalgia is that fibromyalgia is a result of a loss of neurohormonal and metabolic integrity. Hormone-restorative therapy may play a key role in “resetting” the various endocrine loops.

Our own experience and the following studies and observations provide clues as to the nature of fibromyalgia:

- The greater prevalence of fibromyalgia in women, particularly those in their reproductive years, suggests an association between fibromyalgia and sex hormones. Fibromyalgia has been associated with delayed menarche (beginning of menstruation) and reduced fertility, which may be signs of hormonal imbalance.<sup>1</sup>
- Fibromyalgia is characterized by symptoms such as chronic and widespread musculoskeletal pain, fatigue, poor sleep, gastrointestinal complaints, and psychological problems. These symptoms are similar to those experienced by patients with hormonal deficiencies.<sup>17</sup>
- A variety of disorders—including migraine, irritable bowel syndrome, chronic fatigue syndrome, major depression, and panic disorder—frequently are concurrent with fibromyalgia, suggesting that these various disorders may share a common physiologic abnormality.<sup>19</sup> Migraine, fibromyalgia, irritable bowel syndrome, and related conditions display common clinical, biochemical, and pathophysiological patterns.<sup>6,20-22</sup>
- Chronic stress has been linked with the subsequent development of fibromyalgia. One or more abnormalities in neuroendocrine function may explain this connection.<sup>23</sup>
- Fibromyalgia and chronic fatigue syndrome may belong to the same clinical entity and may be considered “psycho-neuro-endocrinological autoimmune diseases.”<sup>24</sup> Many features of fibromyalgia and associated disorders, such as widespread pain and fatigue, may be related to observed neuroendocrine perturbations.<sup>25</sup> Because fibromyalgia and chronic fatigue syndrome share symptoms, we suspect they share a similar etiology and pathogenesis. Neuroendocrine abnormalities have been observed in both disorders, including dysregulation of the hypothalamic-pituitary-adrenal and hypothalamic-pituitary-gonadal axes.
- Patients with fibromyalgia have been noted to have an impaired ability to activate the hypothalamic-pituitary portion of the hypothalamic-pituitary-adrenal axis as well as the sympathoadrenal system.<sup>16</sup>
- Hyperactivity of the sympathetic nervous system may be a common denominator for low levels of DHEA-S in inflammatory and non-inflammatory diseases (for example, in patients with heart failure, fibromyalgia, or cancer cachexia).<sup>26</sup>
- Animal experiments suggest hyperexcitability of the central nervous system as a possible cause of fibromyalgia.<sup>27</sup>

- Fibromyalgia-like symptoms are quite typical for patients who suffer adverse effects from cholesterol-reducing statin drugs. The most common complaints from statin drug users include abdominal and chest pain, dizziness, fatigue, fibromyalgia, headache, insomnia, and upper respiratory tract infection.<sup>28</sup> The similarities between fibromyalgia symptoms and statin drug side effects suggest a possible common pathophysiological mechanism. We hypothesize that statin drugs may produce fibromyalgia-like symptoms by lowering levels of the hormone precursor cholesterol, which could lead to decreases or imbalances in hormone levels.
- Fibromyalgia symptoms such as fatigue, cognitive dysfunction, headache, irritable bowel syndrome, musculoskeletal aches, and others have been significantly improved following treatment with an anti-fungal medication.<sup>29</sup>
- Fibromyalgia is associated with impaired deep sleep<sup>30</sup> and non-restorative sleep.<sup>31</sup>
- Low melatonin levels have been observed in women with fibromyalgia. Melatonin supplementation reduced pain, sleeping disorders, and depression in patients with fibromyalgia.<sup>32</sup>

Treatment of fibromyalgia has traditionally met with limited success, most likely because many practitioners attempt only to manage the symptoms of the condition rather than to uncover and address its underlying cause. The interaction of hormonal, metabolic, and lifestyle factors likely plays an important role in the development and progression of fibromyalgia. Fibromyalgia's prevalence in women, particularly those between the ages of 30 and 60, suggests that alterations between reproductive hormone levels may be involved in fibromyalgia's etiopathology.

Because fibromyalgia and migraine often occur together, it follows that effective migraine therapies might also benefit fibromyalgia sufferers.<sup>33</sup> A multimodal approach that includes restoration of neurohormonal and metabolic integrity has been successfully applied in migraine patients.<sup>33</sup> We found that a similar strategy of hormone restoration greatly benefited this patient with fibromyalgia.

The patient described in this case report had a combination of symptoms from fibromyalgia. Analysis of the medical literature and clinical experience suggests that fibromyalgia patients have a combination of neuroendocrinological and metabolic disorders, with an imbalance of the hormonal axes. This is why the first step of our program was to test hormone levels in the patient and then use bioidentical hormones to balance and restore youthful levels of her hormones. We have frequently noted a pattern of "male dominance" in patients with chronic conditions such as fibromyalgia. Endocrine disorders often lead to a wide spectrum of symptoms that may be reversible using hormone restoration. Because melatonin has been reported to improve sleep and reduce pain in fibromyalgia patients,<sup>32</sup> melatonin was a crucial component of this patient's treatment plan.



Integrative practitioners often find that restoring gastrointestinal health is an integral part of a comprehensive treatment plan. We suspected that the patient's history of prescription drug use might have altered her gastrointestinal flora and function. This was the rationale for using therapeutics to relieve her constipation and restore optimal levels of gut microflora. We found that addressing the patient's gastrointestinal health improved her overall well-being.

Further clarification of the role of neuroendocrine and metabolic abnormalities in fibromyalgia is necessary to evaluate the effectiveness of an integrated therapeutic strategy that includes hormone restoration.

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