

# Piecing Together the Puzzle of Fibromyalgia

## **Jacob Teitelbaum, MD**

**Q: Where are we today in terms of acceptance by the medical community of fibromyalgia as a specific diagnosis?**

**Jacob Teitelbaum:** The good news is that we have come out of the Dark Ages and are moving toward the light, so to speak. However, this is not the first illness for which acceptance as a diagnosis has been a problem. For instance, multiple sclerosis used to be called “hysterical paralysis.” Lupus used to be considered an illness of simply neurotic women, and clinicians were told to not feed into these women’s neuroses. Then, suddenly, we went from this view to having a test for systemic lupus erythematosus—the lupus erythematosus cell preparation or LE prep test—and this condition went from being a disease of “neurotic” women to a real illness.

I have talked with older rheumatologists who say that, when rheumatoid arthritis started rearing its head, and until they had a test for it, some rheumatologists told their patients: “Nothing is wrong. Your test results are normal.” This was despite the presence of swollen and deformed joints and limbs. Basically, what all of these diseases have in common is that these are all illnesses of the immune system that predominantly affect women. It is through this same process of discovery that we are slowly changing our view of fibromyalgia.

With three new Food and Drug Administration–approved medications for fibromyalgia, the drug companies are spending \$210 million each year advertising these medications, which—compared to the \$1 million or so that the National Institutes of Health and Centers for Disease Control and Prevention used to spend to promote awareness of the disease—is changing everything. Physicians are starting to recognize that fibromyalgia is a very real and devastating illness. They may not know how to treat it yet besides turning to one of these three drugs, but it is now becoming more accepted as a clinical entity.

There are still some clinicians who persist in their ignorance. Basically, if a clinician does not know what is wrong with a patient who is struggling with various symptoms, then that clinician should simply admit this and refer the patient elsewhere.

**Q: What are some of the research findings that have helped clinicians gain acceptance and understanding of fibromyalgia?**

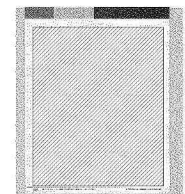
**Dr. Teitelbaum:** There has been an explosion of research in the area showing widespread and demonstrable abnormalities. This makes it difficult to understand the reluctance to acknowledge that fibromyalgia does exist. Researchers have looked at disorders in sleep, hypothalamic–pituitary axis function, immune and autonomic function, cytokine function, and neuropathic and myofascial pain associated with this condition. What this research has revealed is that fibromyalgia is an energy crisis—the body is not able to make enough energy—and there are several studies that show widespread deficits in energy production.<sup>1,2</sup>

A study I did with my colleagues, using ribose, showed a 61% improvement in energy in people with fibromyalgia and chronic fatigue syndrome (CFS)—just by using that single nutrient.<sup>3</sup> Other studies have shown that giving a patient coenzyme Q10, another energy nutrient, is helpful.

These results demonstrate that the key issue when addressing fibromyalgia is restoring energy production, and then, in each person, determining the cause(s) of the energy deficit. Fibromyalgia is not a single, homogenous syndrome. Just as there are hundreds of ways to blow a fuse, there are hundreds of things that can trigger the energy crisis in CFS and fibromyalgia. Understanding how to restore energy production and restore immune function is essential.

Research has also revealed a marked decrease in natural-killer cell activity, and we are also seeing a wide array of cytokine abnormalities. However, while there are widespread derangements in immunity, for now, unless a person is in research, trying to chase each one of these abnormalities with laboratory testing is going to be too confusing to be helpful.

There is also fascinating new research that suggests that the chronic pain of fibromyalgia, together with the immune dysfunction, is associated with what is called a small-fiber neuropathy (SFN).<sup>4</sup> This neuropathy causes not only pain but aggravates autonomic dysfunction. The pain associated with fibromyalgia begins in the muscles, because the energy crisis causes muscles to get locked in a shortened position, and chronic pain causes central sensitization and amplification of pain.





We are seeing a lot of pieces of the puzzle coming together, which, very importantly, are not only supporting the core understanding of how to help people, but we are also able to offer new treatments to help the sickest 15% of people that we have not been able to help until now.

**Q: Are chronic fatigue syndrome and fibromyalgia similar conditions? Are they always linked together?**

**Dr. Teitelbaum:** They are usually the same thing in most people. If there are 100 people with CFS or fibromyalgia, ~ 80 of them will have the other condition. If a person goes into an infectious-disease doctor's office, that patient will come out with a diagnosis of chronic fatigue syndrome. If the patient goes next door to a rheumatologist, that patient will come out with a diagnosis of fibromyalgia. However, each person has a different mix of things that are going on, and clinicians have to consider their patients in different subsets to know what is going to help them—and that takes time.

**Q: Where should a clinician begin with an assessment when he or she believes a patient may have fibromyalgia? Are there specific laboratory tests that you recommend routinely?**

**Dr. Teitelbaum:** If a patient comes in complaining of chronic fatigue or chronic pain, the number-one question clinicians should ask is: "Can you get a good night's sleep?" If the patient's answer is "no, I have horrible insomnia," then the clinician is probably dealing with CFS and, if there is widespread pain, then fibromyalgia is also present.

Now, this does not mean that this person does not have something else going on as well. Remember, this is an energy crisis in which a patient has "blown a fuse." The energy levels go down to a certain point, and the hypothalamus—which controls sleep and requires the most energy for its size of any area in the body—goes offline and the person can't sleep. This gland also controls the hormone system, so the patient will also have widespread hormonal deficiencies, sometimes, despite normal test results. The hypothalamus also controls autonomic functioning. So, the patient is going to tend to have low blood pressure, odd sweating patterns, and bowel dysfunction (because peristalsis is controlled by autonomic functioning).

The pain begins because muscles are like springs. Muscles take much more energy to relax than to contract. When the muscles do not have adequate energy, they get locked in a shortened position, and they hurt. The resulting chronic, widespread pain then triggers neuropathic pain and brain pain (central sensitization). Poor sleep and other factors contribute to poor immunity, and now this process is going on in the patient in front of the clinician. In summary, the clinician recognizes fibromyalgia by the mix of fatigue, widespread pain, cognitive dysfunction, and insomnia. The combination of these four symptoms reflects the CFS/fibromyalgia process.

There is no test that is needed or that is especially helpful to make the diagnosis of CFS or fibromyalgia. There are

tests being developed that will eventually make a difference, because they will help document that patients have fibromyalgia, so that they can get their insurance benefits and not be treated as if they are crazy. However, to make the actual diagnosis of fibromyalgia, all a clinician needs are the symptoms mentioned above.

It is very important to make a distinction here. Even though I say that, for the diagnosis, there is no testing needed, I do extensive testing to look for what is *causing* the energy crisis in CFS or fibromyalgia. It is usually a mix of many different things as one problem cascades into the next problem.

Therefore, among the main tests that I recommend is a complete blood count. Why? To check for anemia or changes in mean cell volume or random distribution width that may reflect thyroid, vitamin B<sub>12</sub>, or iron deficiency. Then I am going to look at the white blood cell [WBC] count. If it tends to be on the high side, I am going to consider that the patient may have an antibiotic-sensitive infection if he or she also has a number of other suggestive symptoms, such as a chronic low-grade fever. If the WBC is on the low side, I am going to consider that the patient may have a viral infection if flulike symptoms and onset are present. Interestingly, if the platelet count is elevated, I am going to suspect an antibiotic-sensitive infection. All of this information is gathered by obtaining a simple CBC.

I also order an erythrocyte sedimentation rate (ESR) test. Most people with fibromyalgia will have a low ESR. C-reactive protein will sometimes be high, but the ESR will be low such as 2, 3, or 4 mm/hour. If I see a result > 15 or > 20 mm/hour, I will look for an inflammatory component, especially autoimmune disease. If the ESR is > 50 or > 60 mm/hour, and the person is more than 50 years' old, I will look for polymyalgia rheumatica. Systemic lupus erythematosus and rheumatoid arthritis are also both common triggers for fibromyalgia.

I will order a general chemistry panel to check for diabetes, low potassium, and calcium abnormalities. Parathyroid hormone problems can trigger CFS and fibromyalgia.

I will order a ferritin level test. If the ferritin is < 60 ng/mL, I will give the patient iron. Studies show that: (1) if a person has restless-leg syndrome, which about a third of people do with this disease, raising the ferritin to > 60 ng/mL is helpful<sup>5</sup>; (2) if somebody has chronic fatigue, raising the ferritin level to > 60 ng/mL is helpful<sup>6</sup>; and (3) low iron will cause mental confusion and immune dysfunction. However, if the ferritin level is > 100 ng/mL, it is going to be proinflammatory. Because iron is oxidative, a level that is too low is not good and one that is too high is also not good. I like to keep the ferritin between ~ 60 and 100 ng/mL.

Next would be a vitamin B<sub>12</sub> level test. For B<sub>12</sub>, I want the level to be > 540 pg/mL. Normal is ~ 200 pg/mL, yet neuropsychiatric changes from B<sub>12</sub> deficiency can be seen with B<sub>12</sub> levels of even 300 pg/mL,<sup>7</sup> and low—or even absent—brain cerebrospinal fluid levels of B<sub>12</sub> are seen in CFS, despite normal blood levels of the vitamin.<sup>8</sup> If the level is < 540 pg/mL, I will give that patient vitamin B<sub>12</sub> as a high-dose sublingually, or even as injections.



I will check the patient's fasting morning cortisol level, which must be drawn before 10 AM. Again, I will determine whether he or she needs adrenal support predominantly by the symptoms reported. The key question here is to ask: "Do you get very irritable when hungry?" If the patient does react that way, he or she needs adrenal support regardless of what the other tests show. But if the patient's morning cortisol level is < 16 µg/dL, or the glycosylated hemoglobin is ≤5.3%, I will suspect he or she needs adrenal support.

In terms of thyroid testing, I will check free T<sub>4</sub>, thyroid-stimulating hormone, and reverse T<sub>3</sub>. I believe that virtually every person with fibromyalgia, unless he or she has an elevated free T<sub>4</sub> or free T<sub>3</sub> level, deserves a trial of thyroid-hormone support, because the defining symptoms of hypothyroidism are fatigue, aches, weight gain, and cold intolerance. But if reverse T<sub>3</sub> is elevated this suggests thyroid-receptor resistance, and the patient needs pure T<sub>3</sub>.

Level of dehydroepiandrosterone sulfate is another test I order. I like to keep it > 120 µg/dL in women, and >300 µg/dL in men.

Other tests may include free and total testosterone, antithyroid peroxidase antibody (to screen for Hashimoto's thyroiditis), follicle-stimulating hormone, luteinizing hormone, total immunoglobulin E [IgE], and tissue-transglutaminase antibody for celiac disease. I may also check the stool for ova and parasites, but only use a laboratory that knows how to do this test properly.

Most people with fibromyalgia have multiple comorbid conditions that have triggered the energy crisis or were caused by the energy crisis. So the clinician will see the immune dysfunction caused by the energy crisis, which then triggers *Candida albicans* overgrowth, which then triggers leaky gut, which then triggers food allergies, so one sees how this becomes a cascade of problems.

### Q: How should clinicians treat fibromyalgia?

**Dr. Teitelbaum:** Clinicians can restore function by treating patients with a protocol I helped to develop. It is called S.H.I.N.E.<sup>®9</sup>

*S is for sleep.* Sleep is critical for immune function. Given that the sleep disorder is profound in people with CFS and fibromyalgia—this disorder is, in fact, a hallmark of the disease—what a clinician will find is that the poor sleep is one of the factors contributing to the immune dysfunction. People should be getting 8–9 hours of sleep a night. To address this issue, I begin with natural herbal mixes, such as the Revitalizing Sleep Formula,<sup>®</sup> [Integrative Therapeutics, LLC, Green Bay, Wisconsin], lavender [*Lavandula* spp.], CalmAid<sup>®</sup> [Nature's Way, Lehi, Utah], melatonin, and if the person's mind is wide awake at bedtime, I add Cortisol Manager,<sup>™</sup> [Integrative Therapeutics, LLC,] melatonin, and I then add in very low doses of the medications Desyrel<sup>®</sup> [trazodone], Flexeril<sup>®</sup> [cyclobenzaprine], and Neurontin<sup>®</sup> [gabapentin] as needed (using the low-cost generics versus the brand names).

*H is for hormonal support—thyroid, adrenal, reproductive.* As I mentioned above, hormonal deficiencies can play a significant role in the symptoms of fibromyalgia and CFS, sometimes despite normal laboratory results. So, patients should be checked for hormone deficiencies and treated appropriately.

*I is for immunity.* There are dozens of infections that have been implicated as causing CFS and fibromyalgia. But what is going on is that the immune system is down, so the body is picking up many "hitchhikers." When the immune system is working, it knows how to cast off most of these hitchhikers. Viral, bacterial, and yeast infections can all contribute to symptoms and should be addressed. *Candida* overgrowth must be eliminated.

*N is for nutritional support.* To make it easy, I recommend a prepared vitamin powder that the patient can drink, which has almost all of the needed vitamins, minerals, and energy cofactors, so that he or she does not have to take a handful of pills each day. This gives people the optimal levels of these nutrients. The exceptions are: fish oils, because oil and water do not mix; iron, because iron can be toxic if it is not needed; and potassium, because the law does not allow > 99 mg (~ 3% of the recommended daily allowance) in multivitamins. Otherwise, from A to Z, the nutrients people need are in the powder. Then, I recommend adding a 1 5-g scoop of ribose, three times a day, for 3–6 weeks, and then twice a day, putting the morning dose into the vitamin powder. I advise the patient to take one highly absorbable omega 3 essential fatty acid tablet with 1 tablet replacing 8 regular fish oil capsules, and I will also recommend 200 mg of coenzyme Q10.

The ribose deserves special mention. In a study in which 53 U.S. health practitioners enrolled 257 patients with CFS/FMS, the outcomes using 5 gm t.i.d. of the ribose were marked. After 3 weeks, D-ribose treatment led to both statistically ( $P < 0.0001$ ) and clinically highly significant average improvements in all categories as follows:

- a 61.3 % increase in energy
- a 37% increase in overall well being
- a 29.3% improvement in sleep
- a 30% improvement in mental clarity
- a 15.6% decrease in pain.

Improvement began in the first week of treatment, and was continuing to increase at the end of the 3 weeks of treatment. The D-ribose was well-tolerated.<sup>3</sup>

It is important to consider zinc deficiency when addressing a person's nutrient status. Any time a person has chronic inflammation or infections, that person has large urine zinc losses. I recommend that people include 15 mg of zinc in their multivitamin intake, and, for 3–4 months, to take an extra 20 mg per day.

Then it is necessary to get the patient to clean up his or her diet by eating whole foods. But a clinician should not tell a patient that he or she cannot have any junk or processed foods. Tell the patient, instead, to start adding in whole foods, such as a whole-grain cereal for breakfast, and to add a handful of



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berries, a banana, and some cinnamon. That is easy, and it is tasty. So one starts by adding in things that are easy for people to do. It is also essential that patients be advised to cut out excess sugar.

Patients should be encouraged to increase salt intake, unless hypertension (in which case sleep apnea should be looked for) or heart failure (which is rare in CFS and fibromyalgia) are present. If clinicians restrict salt in patients with CFS/FMS, they will “crash and burn” because of the adrenal dysfunction and because their antidiuretic hormone levels are low. These patients need more salt and water. So, high protein, low sugar, liberal salt intake, whole foods, and simple supplementation. . . . and one has got the nutritional component covered.

*E is for exercise as able.* The problem is that people with fibromyalgia do not have enough energy to condition beyond a certain point. Because of that, if they overdo, they can crash and burn and become bedridden for 1–2 days, and they become afraid to exercise. Because of that, they decondition, which dramatically worsens the disease. Clinicians should recommend a middle path, which is, asking patients to walk to the level that they are comfortable with. I recommend they use a pedometer so they can get feedback on how many steps a day they are walking and, as they are able, to keep raising their walking distance by 50 steps a day. Once a person has been on the SHINE protocol for 10 weeks, that person’s energy production is going to skyrocket, and he or she will be able to start conditioning.

**Q: Are there other complementary therapies, such as acupuncture or massage, that are helpful for treating fibromyalgia?**

**Dr. Teitelbaum:** Yes, because what we are doing with SHINE is treating the metabolic energy crisis, but what about the structural issues? If the pain is starting because the muscles are locked in a shortened position, those muscles can be released with chiropractic care or other excellent forms of bodywork. The muscle can be released by putting a needle into the trigger point, the belly of the muscle. About 70% of acupuncture points correspond with muscle trigger points, so if you insert a needle you will get the *qi* flowing, and you will also release the muscle at the same time.

People with fibromyalgia often have an immune system that is overwhelmed because of food sensitivities, and these patients also suffer from poor digestion and leaky gut. NAET [Nambudripad’s Allergy Elimination Technique], which is a special offshoot of acupuncture can help eliminate food aller-

gies and other allergies.<sup>10</sup> In fact, a study that the Teitelbaum Family Foundation funded used NAET in 60 children with autism—such children commonly have food and nutrient sensitivities.<sup>11</sup> In this study, 30 of the participants were randomized to a NAET group and 30 to a standard treatment group. By the end of 1 year of treatment with NAET, 23 of the 30 children with autism were back in regular school, as opposed to 0 of 30 in the untreated control group. So if a person comes in with a history of being very sensitive to many types of foods, and especially if that patient’s IgE level is elevated, I will send him or her for NAET.

I have seen people whose severe CFS went away just from the NAET. These are often people whom a clinician cannot approach otherwise, meaning one cannot even give such patients nutritional or herbal support, because they are sensitive to everything. So the NAET can be a helpful adjunct for treatment.

In my experience, immunoglobulin G [IgG] testing for food allergies is unreliable and, therefore, NAET is my preferred approach for addressing this issue. Though muscle testing is an art, and may also be “iffy” in some cases, my concerns about the reliability of IgG testing are avoided by recommending that people with food sensitivities are treated with this simple and benign technique for each of the most common 10–15 food allergens—regardless of the patient’s test results. Homeopathy is coming from a totally different direction. It is all about energy, and it allows one to get past blockades. If one has a patient whose symptoms just cannot be relieved, sometimes homeopaths can help. However, a clinician considering this approach should work with a practitioner who is a very well-trained classical homeopath.

Massage, like chiropractic and acupuncture, will help release tight muscles. Now, if one does not treat the metabolic components of SHINE, the energy crisis will remain, so the patient will feel better for a day or two or a week, but then the patient’s muscles will go right back down to the shortened position.

*T’ai chi* has been shown to be helpful. Yoga can be very helpful. Anything that incorporates stretching and mindfulness can be very helpful, because the person with fibromyalgia tends to be on adrenaline overdrive. These patients are adrenaline-exhausted, but they also tend to have the norepinephrine pathways constantly being triggered. The ability to calm, center, breathe, and relax is incredibly empowering and healing for people.

**Q: What do you hope for the future in terms of clinicians understanding more about the cause and treatment of fibromyalgia and the complexities that you mention?**

**Dr. Teitelbaum:** Over the next 20 years, my goal is to support practitioners in being able to take care of people with fibromyalgia, CFS, Alzheimer’s disease, and other conditions. I want holistic practitioners of different backgrounds to start working together. When I was a resident, if I saw someone with a retinal tear, I did not think: “Oh my gosh, I have to know how to treat this.” No—I sent that patient to an ophthalmologist. If someone had an acute appendix, I sent that person to a surgeon.



Once we have enough practitioners in each city as part of our new Fatigue and Fibromyalgia Practitioners Network<sup>12</sup>—acupuncturists, nutritionists, herbalists, homeopaths, physicians, and others—I want to get them together, have them sit down for a meal, get to know each other, and get to know what skills they bring to the table, so they can begin to cross refer patients properly. We also have a free social network platform for *all* health practitioners, so they can begin to share information.

We recognize that fibromyalgia takes time to assess. That is why we are giving people the tools to make this easier. The workshop that the Fatigue and Fibromyalgia Practitioners Network offers online—which is an 8-hour course that clinicians can take at their leisure—will make clinicians experts. They can learn how to do the basics in 1 day, and then, like so many other things, it will take a lifetime to master. However, by working together, clinicians do not have to know everything; they just have to know the basics, and then they can help people dramatically.

Finally, it is so important for people to understand that this illness is not the enemy. When one blows a circuit breaker in one's home, it is really annoying and nothing works, but is that circuit breaker the enemy? Does one have "circuit-breaker disease"? No—it is a protective mechanism, showing that the electrical system is overloaded. Fibromyalgia is a very treatable disease, and it basically takes people out of the game in the face of an energy crisis, so they do not hurt themselves. Their "circuits" may overload again, if they do not learn how to restore and maintain their energy balance. This illness teaches people—in a nutshell—how to say no to things and how to become authentic—and that can give them back their lives!

### Disclosure Statement

Dr. Teitelbaum helped to design the formula for Revitalizing Sleep Formula.<sup>®</sup> He advises on the Scientific Advisory Boards of Schwabe, Bioenergy, and EuroMedica, and has directed that any royalties/fees from them (and any other supplement or pharmaceutical companies) be donated to charity. There are no existing financial conflicts regarding any other products mentioned in this article. ■

### References

1. Bazzichi L, Giannaccini G, Betti L, et al. ATP, calcium and magnesium levels in platelets of patients with primary fibromyalgia. *Clin Biochem* 2008;41:1084–1090.
2. Bengtson A, Henriksson KG, Larsson J. Reduced high-energy phosphate levels in the painful muscles of patients with primary fibromyalgia. *Arthritis Rheum* 1986;29:817–821.
3. Teitelbaum J, Jandrain J, McGrew R. Treatment of chronic fatigue syndrome and fibromyalgia with D-ribose—an open-label, multicenter study. *Open Pain J* 2012;5:32–37.
4. Nurcan Ü, Zeller D, Kahn AK, et al. Small fibre pathology in patients with fibromyalgia syndrome. *Brain* 2013;136(pt6):1857–1867.
5. Wang, J, O'Reilly, B, Venkatarman R, et al. Efficacy of oral iron in patients with restless legs syndrome and a low-normal ferritin: A randomized double-blind, placebo-controlled study. *Sleep Med* 2009;10:973–975.
6. Vaucher P, Druais P. Effect of iron supplementation on fatigue in nonanemic menstruating women with low ferritin: A randomized controlled trial. *CMAJ* 2012;184:1247–1254.
7. Lindenbaum J, Heaton EB, Savage DG, et al. Neuropsychiatric disorders caused by cobalamin deficiency in the absence of anemia or macrocytoses. *N Engl J Med* 1988;318:1720–1728.
8. Regland B, Andersson M, Abrahamsson L, et al. Increased concentrations of homocysteine in the cerebrospinal fluid in patients with fibromyalgia and chronic fatigue syndrome. *Scand J Rheumatol* 1997;26:301–307.
9. SHINE—a Holistic Approach to Optimizing Energy. EndFatigue.com Online document at: [www.endfatigue.com/treatment\\_options/Shine\\_treatment\\_protocol.html](http://www.endfatigue.com/treatment_options/Shine_treatment_protocol.html) Accessed August 26, 2013.
10. NAET—Nambudripad's Allergy Elimination Techniques. Online document at: [www.naet.com/default.aspx](http://www.naet.com/default.aspx) Accessed August 26, 2013.
11. Teitelbaum J, Nambudripad DS, Tyson Y, et al. Improving communication skills in children with allergy-related autism using Nambudripad's allergy elimination techniques: A pilot study. *Integr Med* 2011;10:36–43.
12. Fatigue and Fibromyalgia Practitioners Network. Online document at: <http://vitality101.com/ffpn> Accessed August 26, 2013.

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