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Perspectives

Functional Medicine
The Missing Link in Addictionology

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"There is a principle which is a bar against all information, which is proof against all arguments and which cannot fail to keep a [person] in everlasting ignorance—that principle is contempt prior to investigation.

—Herbert Spencer (Alcoholics Anonymous, 1976)

Introduction

Historically, five distinct approaches to psychoactive substance use disorders have been adopted over time (Table 1). The five positions are:

1. the morality position (includes the religious)
2. the psychological position (includes the spiritual or psycho/social/spiritual)
3. the psychiatric position
4. the functional medicine position
5. the energy medicine position

Each position has contributed to our understanding of psychoactive substance use disorders. Each arose sequentially, reflecting the cultural values of the time, and each position was supported by the best information available at the time it came into vogue. Figure 1 lists the approximate time eras for each position, the posited cause of psychoactive substance use disorders, the types of treatment utilized by each position, and likely outcomes witnessed in the author's 25-year addictionology career.

Using long-term abstinence as the measure of a positive outcome, to date there is little evidence that the morality position works, except as a deterrent for those already maintaining a successful recovery or to provide a disincentive for those threatening to abort treatment against medical advice. The psychiatric position, espousing the use of psychopharmacological drugs, has value for short-term detoxification and stabilization in early recovery, but numerous studies using complete abstinence as a measure of successful outcome have never, to the author's knowledge, demonstrated even modest efficacy. Studies of psychological or psycho/social/spiritual interventions suggest some beneficial, long-term outcomes, but when functional medicine treatments are added to these, long-term outcomes (one year minimum) are enhanced dramatically. Currently there is a paucity of data supporting the efficacy of energy medicine interventions on long-term total abstinence from psychoactive drugs.

Figure 1 compares long-term outcome rates for three studies that combine the psychological and functional medical positions. Mathews-Larson and Parker (1987) reported a 74% rate of long-term (1-3½ years) abstinence (74/100 patients "abstinent and stable") with 17 of the 74 patients having had a brief relapse during that time period. Their treatment complemented the biochemical and nutritional interventions with rational emotive therapy—supportive, reeducative, and reconstructive psychotherapies. Beasley et al. (1991) reported a 69% rate of long-term (1-year) abstinence (63/91 patients "sober and stable"). Beasley complemented the biochemical and nutritional interventions with a mix of behavioral medicine therapies and 12-step support groups. An outcome study completed by New Standards Inc.

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Table 1. The 5 Approaches to Psychoactive Substance Use Disorders

Position	Morality (#1)	Psychology (#2)	Psychiatric (#3)	Functional Medicine (#4)	Energy Medicine (#5)
Time Period	The last 3000 years	The last 100 years	The last 50 years	The last 25 years	The last 15 years
Presumed Causes	Immorality & sinfulness; substance abusers are "bad" (sociopathic)	Emotional & behavioral disturbances; substance abusers are "sad" (neurotic)	Mental illness; substance abusers are "mad" (manic-depressive, psychotic, etc.)	Underlying physiological imbalances cause abusers to act "bad," feel "sad," & be "mad"	Energy imbalances in the body, or "chi," cause disease, mood swings, cravings
Treatment	Punishment, imprisonment, & social isolation	Psychotherapy, Alcoholics Anonymous, counseling	Psychotropic chemicals, psychiatric hospitalization, ECT	Nutritional treatments, comprehensive detoxification, GI tract healing	Acupuncture, biofeedback, kinesiology, homeopathy, acupressure, etc.
Outcomes	Suicide, homicide, disease, premature death	Some positive outcomes, but physiological imbalances remain	Homicide, suicide, cross-addiction, mental illness stigmata	-80% rates of long term recovery, 3 times the national average	Some positive outcomes, but physiological imbalances remain

(St. Paul, Minn.) measured long-term (2-year) total abstinence rates of 60%, 67%, and 79% for patients who used nutritional supplements during their impatient stay only, for 1-6 months following inpatient treatment, and for 7-12 months after completing inpatient treatment, respectively. In this study, psychosocial interventions complementing the functional medicine bionutritional treatments were primarily 12-step focused. Figure 1 graphically portrays other long-term outcome studies (Gerard and Saenger, 1962; Emrich, 1974; Emrich, 1975; Polich et al., 1980; Vaillant, 1983; Powell et al., 1985) as reported by Mathews-Larson (1997). These dismal outcome rates (18%-34%) are typical of programs that do not incorporate functional medicine bionutritional intervenetions. Using six months of abstinence (intermediate-term) as a measure of successful outcome, Guenther (1983) demonstrated an 81% versus 38% positive outcome in alcoholics who received nutritional therapy versus a control group who did not.

Since publication of the above studies, functional medicine-focused laboratory testing of immunological, endocrine, gastrointestinal, bionutritional, and neuronutritional status has become much more accessible, affordable, standardized, and insurance reimbursable. Such testing permits clinicians to investigate a patient's biochemical imbalances far more comprehensively than the standard, relatively superficial, blood and urine testing (e.g., CBC, urinalysis, and blood chemistries). Determination of the underlying nutritional deficiencies, toxicities and neurodegenerative factors endemic to a substance abuse population no longer needs to be guesswork. The unique requirements of each individual can be determined precisely with functional medicine laboratory testing. A large body of scientific evidence strongly suggests that such physiological imbalances un-

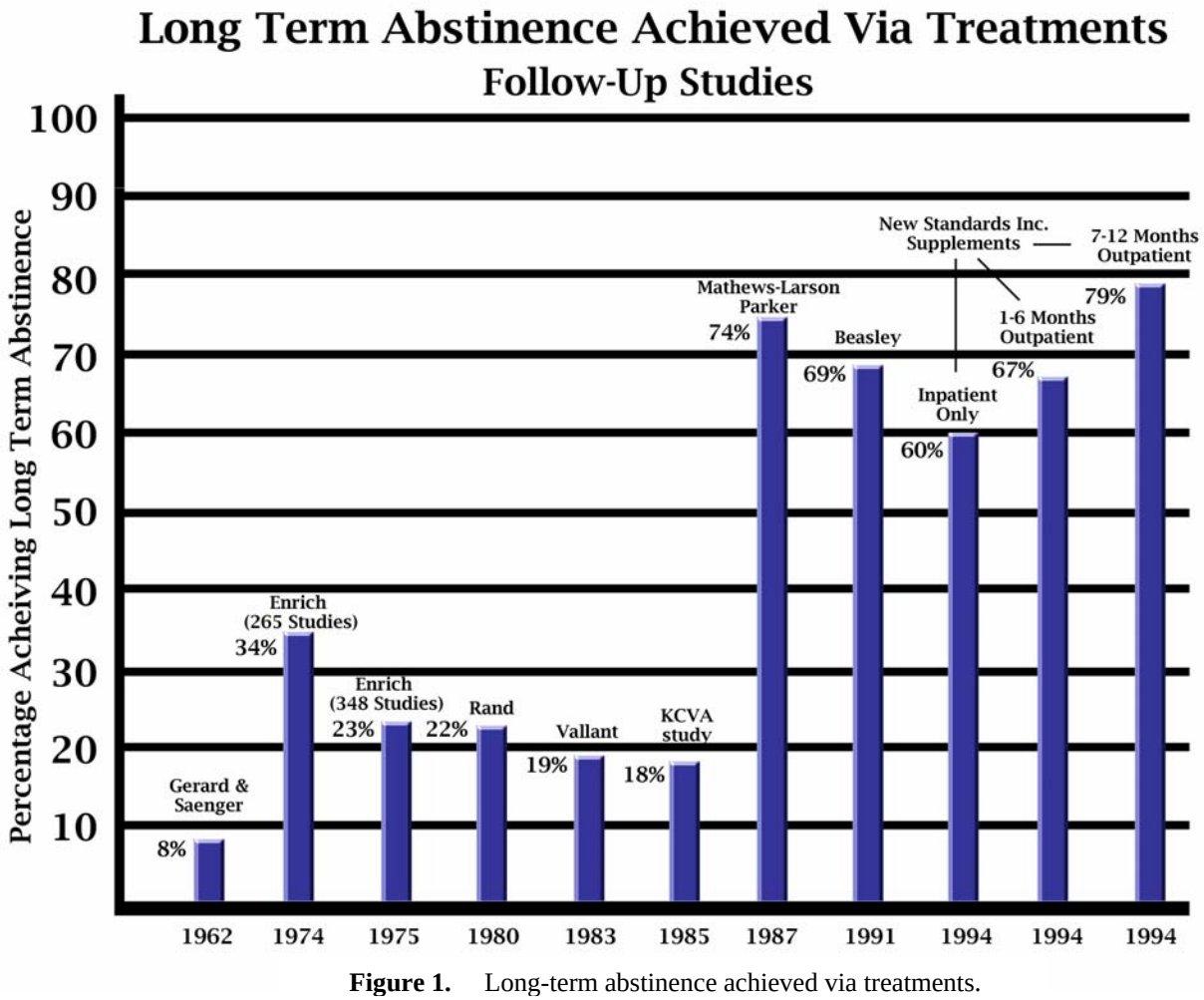

Figure 1. Long-term abstinence achieved via treatments.

derlie the psychiatric and medical symptoms expressed by substance abusers, as well as playing a role in chronic degenerative disease and aging. The author routinely evaluates patients in recovery from psychoactive substance use disorders using the following functional medicine test panels (Great Smokies Diagnostic Laboratory), which are discussed in more detail in the Case Presentation:

1. Plasma amino acid analysis
2. RBC membrane fatty acid analysis
3. RBC intracellular mineral assay
4. Vitamin and phytonutrient assays
5. Stool testing of GI physiology (e.g., comprehensive digestive stool analysis)
6. Toxicology hair testing (e.g., heavy metals)
7. Toxicology blood testing (e.g., petrochemical and insecticide poisoning)
8. IgG plasma food allergy panels (90-120 foods)
9. Blood endocrine assays (e.g., cortisol [adrenal functioning], melatonin, progesterone, testosterone, and estrogen)
10. Saliva endocrine assays

These tests sort through the physiological imbalances unique to each individual, which undoubtedly underlie symptoms displayed by individuals in recovery, such as drug craving, mood instability, depression, irritability and anxiety, insomnia, obsessive thinking and compulsive behaviors. For instance, a large body of scientific evidence strongly suggests that these symptoms are related to imbalances in brain neurotransmitter functioning. The older psychiatric model of treatment typically employs psychopharmacological interventions to temporarily stabilize these symptoms. The newer functional medicine model goes beyond simply "sealing over" such symptoms and seeks to determine the actual causative physiological

imbalances. Then, targeted bionutritional interventions are prescribed to correct the neurotransmitter and other physiological imbalances unique to each individual, thus bypassing the need for most psychotropic medication. (Psychotropic medication may be needed for acute detoxification and for individuals with significant brain injury, who are less likely to respond to functional medicine interventions.)

The studies employing bionutritional interventions depicted in Figure 1 (Mathews-Larson, Beasley, New Standards) were completed prior to the wide availability and standardization of the functional medicine testing panels. Most bionutritional interventions utilized in these studies were relatively non-tailored to the specific needs of the patient; nutritional protocols were prescribed based on the assumption that certain deficiencies and toxicities were likely to be present in the drug and alcohol recovering population being treated. Such an assumption is well-supported by scientific literature abounding with studies suggesting that general malnutrition (Diamond, 1989; Register et al., 1972; World et al., 1985; Wissel, 1987), essential fatty acid deficiencies (Bates, 1990; Glenn et al., 1984; Horrobin, 1980; Horrobin, 1984; Rudin, 1981; Seganick, 1985), amino acid deficiencies (Blum et al., 1989; Ikeda, 1977; Nasrallah et al., 1980; Rogers et al., 1956), vitamin deficiencies (Baines, 1978; Blocker et al., 1987; Brown et al., 1990; Cleary, 1990; Davis et al., 1970; Leo, 1983; Lumeng, 1978; Majumdar, 1981; Susick et al., 1987), mineral deficiencies (Flink, 1986; McClain et al., 1983; O'Brien, 1952; Pall et al., 1987), dysglycemia and hyperinsulinism (Forander et al., 1958); Freinkel and Getzger, 1969; O'Keefe and Marks, 1977) and other physiological imbalances are clearly associated with psychoactive substance use disorders. The above references are but a small fraction of the studies in the literature that have investigated the relationship of nutritional status to psychoactive substance use disorders. Indeed, Bill Wilson (1968), the venerable cofounder of Alcoholics Anonymous, promoted vitamin B3 (niacin) as a bionutritional treatment of alcoholism over 30 years ago. Why niacin was effective in reversing alcohol craving and depression was unknown then, so he made a plea for research efforts to be launched. Now, nearly thirty years after his death, studies have found that niacin is a cofactor for the conversion if the amino acids tryptophan and tyrosine to serotonin and the catecholamines respectively; that nicotinic acid (form of B3) oxidizes alcohol to reduce acetaldehyde levels, thus reducing oxidative stress and the formation of the morphine-like tetrahydroisoquinolone (THIQ) (Cleary, 1986), that niacin decreases the mortality of DTs from 90% to 14% (Jolliffe et al., 1940) and that a five-year study of 507 alcohol dependent individuals demonstrated that 30% of the patients and 50-60% of the "organic" alcoholics had markedly reduced recidivism and symptom reduction with niacin treatment alone (Smith, 1974). Had Bill Wilson's visionary work been taken seriously by AA and the medical community he was appealing to, countless lives could have been saved.

These studies build a foundation of knowledge from which we can now assess the physiological imbalances unique to each recovering individual – imbalances that cause distortions in neurotransmitter and other physiological functions, that are expressed as symptoms according to the unique genetic vulnerabilities of the individual to such imbalances. To the author's knowledge, outcome studies assessing the efficacy of complete functional medicine evaluations and treatment have not been done.

Case Presentation

Margaret was a 42-year-old, married, white mother of two (ages 13 and 15) who presented for outpatient evaluation and treatment of alcohol, nicotine and marijuana dependence. Diagnosis had been established many times over, during two inpatient drug and alcohol rehabilitation treatments (3 weeks each), an intensive outpatient treatment (3 months), family therapy (6 months) and three standard outpatient treatments consisting of weekly groups and individual counseling (3 to 9 months each). During Margaret's 10-year history of chronic relapses, she had received not only treatment based on the psychological perspective, but had also willingly complied with extensive, intermittent psy-

chiatric treatment for the last 3 years, receiving various psychopharmacological regimens (antidepressant and anxiolytic medications, Revia and Depakote). She has also had several acupuncture treatments (energy medicine) for smoking cessation and earlier in her treatment history, had been mandated by the courts (morality position)) into treatment following a second DWI.

During the last 10 years of treatment, Margaret had never experienced a significant period of time when she was free of dysthymic symptoms, sleep disorder, irritability or cravings despite prolonged periods (over 6 months) of complete abstinence from alcohol, nicotine and marijuana, and self-motivated participation in her various treatment plans. In spite of having to endure these symptoms, she faithfully "worked her 12-step program," but was told by her AA sponsor and other AA members that she continued to suffer because she failed to have sufficient faith in God. This, despite devout and regular attendance at her church throughout most of her life.

When Margaret presented at my office, she had been sober from alcohol and marijuana for 8 months, but was "just hanging on" as she put it. She continued to smoke 1 pack of cigarettes a day. She attended AA every day and outpatient group therapy once a week. Although her outpatient therapist, primary care doctor, and psychiatrist recommended psychotropic medication, she had opted to remain medication-free, stating that "it works for a while, but eventually seems to wear off and never really helped me stay stopped." Despite her chronic relapse history, except for the time during which she received inpatient treatment, she had not missed work and was a loving and fairly responsible parent and spouse.

Physical exam and medical history revealed the following pertinent positives:

- A history of intermittent palpitations, with many EKGs all essentially normal
- Intermittent epigastric discomfort and a history of gastritis and esophagitis
- Migraines (weekly)
- Terminal insomnia (early morning awakening)
- Anhedonia, irritability, fatigue, mild symptoms of depression
- Intermittent, mild irritable bowel syndrome (IBS) symptoms with bloating
- Intermittent cravings for alcohol
- Mild psoriasis
- Heavy, irregular and painful periods (menometrorrhagia)

CBC (complete blood count), blood chemistries, T4 and TSH (thyroid studies), and urinalysis were all within normal limits. These tests had already been done by Margaret's family physician, who told her she was in perfect health and that her symptoms were of psychosomatic origin or, as she put it, "all in my head."

Plasma amino acid analysis (test panel 1) revealed several abnormalities. Leucine was 8.7 mm/dl (norm for well people 9.5 - 16.5 mm/dl) and methionine was 1.9 mm/dl (norm for well people 2.4 - 4.6 mm/dl). These two amino acids are critically important for enkephalin synthesis. Enkephalin deficiency is strongly implicated as an important neurotransmitter deficiency causing alcohol cravings. Acetaldehyde (a metabolite of alcohol) condenses with brain biogenic amines to form TIQs (tetrahydroisoquinolones), which have artificial enkephalin-like activity. This is the basis for the TIQ (or THIQ) theory of alcoholism (Meyer, 1978; Cohen and Collins, 1970; Davis and Walsh, 1970). Margaret's ability to restore or maintain a sufficient supply of enkephalins would be jeopardized by deficiencies in these two amino acids. Also, methionine is required for the last step of melatonin synthesis, explaining her complaints of terminal insomnia. Based on this finding (along with a tryptophan deficiency discussed below), a melatonin deficiency was presumed to be the cause of Margaret's insomnia and salivary melatonin levels did not have to be ordered for absolute clarification. Leucine and methionine were both supplemented at a dosage of 1500 mg. twice a day.

Plasma amino acid analysis also revealed a low tryptophan level at 2.8 mm/dl (3.2 – 6.4 mm/dl). Tryptophan is the precursor for serotonin (and melatonin), making it highly unlikely that Margaret can synthesize adequate amounts of serotonin to modify the stressors she rou-

tinely faced (coping). This would explain the symptoms of anxious depression and her history of temporary SSRI-induced symptom improvements. Serotonin is intimately involved with inflammatory cascades (as is histidine, the precursor for histamine) in the GI tract, where she may be using up the tryptophan before it has a chance to satisfy her brain's requirements. The author has found that correction of GI tract inflammation often eventually corrects the tryptophan deficiency. Margaret was supplemented with 5-HTP (5-hydroxy tryptophan) at a dosage of 100 mg three times a day. 5-HTP is an amino acid derived from tryptophan, which is the immediate precursor for serotonin. The remaining 40 amino acids were essentially within normal limits except for cysteine (a detoxification amino acid) which is covered by supplementation of its precursor, methionine.

RBC membrane fatty acid analysis (test panel 2) revealed deficiencies in all members of the omega-3 series as measured by the percentage of lipid by weight compared to the total amount of lipid present in the membranes of red blood cells. The ALA (alpha-linoleic acid) was 0.07% (0.1-0.4%), the EPA (eicosapentaenoic acid) was 0.19% (0.25-1.6%), the DPA was 0.8% (1.0-4.3%), and the DHA (docosahexaenoic acid) was 1.8% (2.0-12.0%). Migraines have been linked to omega-3 fatty acid deficiencies as well as to magnesium deficiency. The omega-6 series were essentially within normal limits, except for a slightly low GLA (gamma-linoleic acid) at 0.04% (0.03-0.17%) which, along with a high normal LA (linoleic acid), implied a low level of delta-6-desaturase, which converts LA to GLA, often lacking in individuals of Margaret's northern European ethnic heritage. Essential fatty acids are critical for cellular membrane repair, especially in the GI tract and the brain, and improve membrane receptor activity (neuroplasticity) for general neurotransmitter functioning. Also, the PG1 (prostaglandin 1) series, derived from the omega-6 fatty acids, are directly implicated as neurotransmitters themselves and the euphoric effects of alcohol is thought to be derived in part from the release of PG1s. Conversely, PG1 deficiency is implicated in seasonal affective depression and may be driving some of Margaret's symptoms of alcohol craving and depression.

RBC intracellular mineral assay (test panel 3) revealed deficiencies in magnesium at 32.3 parts per million (ppm) (36 – 49 ppm), zinc at 6.7 ppm (8 - 12.5 ppm), and selenium at 0.172 ppm (0.195 – 0.475 ppm). Copper was high at 0.82 ppm (0.48 – 0.74 ppm) and tin toxicity was noted at 9.7 ppm (0.2 – 4.5 ppm). The three deficient minerals were supplemented. Along with the essential fatty acid deficiency, the zinc and selenium deficiencies account in part for enhancing Margaret's risk of psoriasis (two close relatives also have psoriasis). The magnesium deficiency undoubtedly contributed to her anxiety symptoms and palpitations. Copper in excess will block the enzyme 5HTP decarboxylase, which converts 5HTP to serotonin (Irwin et al., 1981). Genetic deficiencies in this enzyme may account in part for familial anxious depression. Margaret was instructed to avoid water from copper tubing, to take a multivitamin that does not contain copper, and to recheck her copper and tin levels in 6 months. She was also instructed to avoid stannous (tin) fluoride toothpastes and food from tin cans. High tin levels could cause fatigue; therefore Margaret was started on a program of oral tin chelation using sulfur containing supplements (e.g., alpha lipoic acid) and foods (cilantro and parsley).

An 18 vitamin and phytonutrient panel assay (test panel 4) revealed only mild deficiencies in vitamins B6 and B3 and choline. The activated form of vitamin B6 (pyridoxal-5-phosphate) was supplemented at a dose of 50 mg three times a day, as some individuals have difficulty phosphorylating this critical B vitamin. B6 is essential for the synthesis of several important neurotransmitters (e.g., serotonin); this finding tallies as the fourth impediment to serotonin synthesis found so far in Margaret. Choline was supplemented as purified lecithin, mostly consisting of phosphatidyl choline, at a dose of 2000 mg twice a day. Phospholipids such as phosphatidyl choline are critical for membrane repair in the GI tract, brain and other organs, and have been found to reverse cirrhosis in animal studies. The choline portion is a precursor to the neurotransmitter acetylcholine. Pantethine (activated vitamin B5) is a cofactor for acetylcholine synthesis and it was supplemented twice daily even though a deficiency was not noted. Acetylcholine receptors are the

primary site where nicotine initiates its psychotropic effects and supplementation with purified lecithin has been found to diminish cravings for cigarettes. A factor in Margaret's chronic relapse history has been an inability to stop smoking, and therefore it was essential to address the bionutritional basis of nicotine addiction immediately.

A comprehensive digestive stool analysis (test panel 5) revealed several abnormalities. Stool chymotrypsin was low at 2.2 IU/g (6.2-41 IU/g) explaining Margaret's symptoms of bloating. Chymotrypsin is a pancreatic digestive enzyme that hydrolyzes dietary food protein into smaller peptides. When it is depleted, a significant volume of food can arrive undigested in the large intestine, where putrefaction causes irritation, gas and bloating. Otherwise Margaret's physiological parameters of digestion and absorption were normal. Cultures of stool revealed deficiencies in lactobacillus and acidophillus, two important protective species of good flora. These were supplemented, and since she was not allergic to dairy foods, she was instructed to eat more non-sweetened yogurt. Stool yeast cultures were 4+ for candida albicans (0 – 1+ is normal, 2+ - 4+ is abnormally high). Sensitivity testing done at the laboratory indicated that uva ursi, an herb, inhibits the growth of the species infecting Margaret's intestines. Therefore uva ursi was supplemented, along with anti-candida homeopathic remedies (an energy medicine intervention). The yeast overgrowth probably was yet another factor potentially causative of the psoriasis and the migraines. The yeast sensitivity testing also indicated that Margaret's candida species was sensitive to three powerful antifungal antibiotics, Nizoral, Diflucan and Sporanox. But due to her chronic history of alcoholism and the possibility of some chronic liver involvement, I elected to treat her with a newer antifungal Lamisil, even though sensitivity testing on Lamisil was not available. Lamisil is much less stressful to the P450 detoxification liver enzymes and thus is less likely to cause toxic hepatitis.

Hair testing for heavy metals (test panel 6) also revealed the tin toxicity. There was a slight accumulation of mercury, but since the blood testing for mercury was negative, I elected to not pursue more aggressive heavy metal chelation at this time. I instructed Margaret to have her fillings checked, because the hair testing suggested that one or more amalgam fillings could be decomposing. If any fillings needed repair, I recommended substitution of a mercury-free material. Also, she was discouraged from eating tuna and swordfish due to the likelihood of mercury contamination. The concentrations of mercury in Margaret's brain could be much higher than would be predicted by the testing above, and since mercury is one of the most powerful neurotoxins known, it's presence could be a causative factor in her psychiatric symptoms.

Toxicology screens (test panel 7) were not ordered since Margaret did not have a history of industrial or work exposure to solvents, cleaning agents or insecticides. But IgG food allergy testing (test panel 8) revealed a moderate amount of "leaky gut," as she was highly allergic to three foods (garlic, peanuts and wheat) and moderately allergic to 11 others. She was placed on a food elimination rotation plan tailored to her needs. *Helicobacter pylori* IgG, IgA and IgM antibodies were all positive, strongly suggesting that this common pathogen was the causative factor of her chronic upper GI symptoms (gastritis and esophagitis). The combination of *H. Pylori* infection, food allergy, yeast overgrowth and digestive enzyme deficiency all generate gastrointestinal inflammation likely to be causing many of Margaret's symptoms, both in her GI tract and at other sites in her body. As 60% to 80% of the immune system normally focuses on containing the potentially hostile contents of the GI tract, a persistent immunological challenge (as in Margaret's case) in that region causes the release of blood-borne inflammatory mediators (e.g., cytokines, leukotrienes), which generalize the stress response to the whole body. This results in the release of buffering stress hormones (like serotonin) in the brain to modify the systemic stress, a coping stress hormone that is already likely to be at suboptimal levels in Margaret.

Given the likelihood that the profound physiological abnormalities discussed above would be causing secondary imbalances in endocrine functioning, I elected to delay testing cortisol, estradiol and progesterone levels (test panels 9

and 10). As expected with treatment, Margaret's periods eventually began to cycle normally, and the heavy flow and discomfort were much less.

Within one month of treatment all of Margaret's symptoms had vanished. She was referred to an acupuncturist for smoking cessation and was able to stop smoking without significant withdrawal symptoms. She found it easier to get in touch with and express her feelings in group therapy sessions. Margaret's newfound energy allowed her to be more interacttive with her children. The absence of cravings, mood swings and sleep problems allowed her to maintain abstinence from alcohol, marijuana, and cigarettes without a struggle. She had achieved a quantum leap in functional level as a result of treatment from a functional medicine perspective. Nevertheless, even though the physiological imbalances causing her symptoms had been corrected, I cautioned her about being overconfident in regards to alcohol and drug recovery. I recommended that she continue relying on her psychosocial supports as she had done previously. Three years later, Margaret remains truly sober, not only in mind and spirit but also in body.

Assessing Psychoactive Substance Use Treatment Methodologies

Four golden standards used to assess therapeutic interventions are:

- Toxicity: What are the side effects and/or potential for injury?
- Efficacy: Does the treatment work?
- Expense: How much does it cost?
- Simplicity: Is it simple to explain, to understand, and to do?

Generally speaking, if an intervention does very well in 1 or 2 of these categories, and a more suitable alternative is unknown, most healthcare professionals will recommend a certain treatment rather than do nothing at all. For instance, if an expensive antibiotic has a high efficacy rating for an infectious process and has minimal toxicity, it may be prescribed and some means found to acquire the medication for a patient who cannot afford it. On the other hand, even if a patient were to indicate that a nonsteroidal anti-inflammatory drug (NSAID) did not mitigate their arthritic pain, the low efficacy issue may be overridden by low expense and acceptably low toxicity considerations. The NSAID may be recommended anyway, in the hope that some minimal benefit might accrue.

Functional medicine interventions are safe, efficacious, inexpensive, and simple to apply; in the author's opinion they receive high grades when compared to other methodologies of intervention for psychoactive substance use disorders. As discussed above, studies suggest that the combination of psychotherapeutic or psycho/social/spiritual interventions with functional medicine interventions achieve the highest successful outcomes, as measured by abstinence from psychoactive substances. Table 2 represents the author's best appraisal of all 5 treatment methodologies, cross-referenced to the 4 gold standards above. As new data accumulates, or data that the author is not aware of becomes known, these appraisals would be expected to change over time.

Functional medicine interventions are individualized to the unique needs of the patient, and often require the simultaneous application of a dozen or more bionutritional treatments (as in Margaret's case). A double-blind, placebo-controlled format to study functional medicine interventions is unfeasible, because each individual expresses their unique biochemical imbalances via their unique genetic makeup. Thus, from a functional medicine perspective, each individual is a solitary outcome-based study of his or her own. Psychopharmacological interventions, on the other hand, are suited to double-blind, placebo-controlled investigations, because the intervention variables can be controlled; outcomes of treatment with one (or a few) drugs are compared to placebo, while ignoring the underlying physiological imbalances that are causing the symptoms in the first place. Even so, psychopharmacological studies could ultimately demonstrate positive long-term outcomes for psychoactive substance use disorders, in which case they should be seriously considered as a viable long-term therapeutic option.

Table 2. "Report Card" on the 5 Treatment Methods of Psychoactive Substance Abuse

Position	Morality (Punitive R_x)	Psychology (Psycho-R_x)	Psychiatric (Drug R_x)	Functional Medicine (Nutritional R_x)	Energy Medicine (Energy R_x)
Safety	D	A+	D	A	A
Efficacy (short-term)	B	B-	B+	B-	B+
Efficacy (long-term)	F	C-	D-	A+	?
Expense	F	A to C*	A to C*	A to C*	A to C*
Simplicity	F	D	A	A-	C

*Depends on insurance coverage

In order to circumvent such low efficacy of pharmaceutical agents in the treatment of psychoactive substance use disorders, drug studies have had to change the conventional meaning of the term "successful outcome." For instance, in the author's opinion, since Revia (naltrexone) does not improve abstinence outcomes or prevent relapse in alcohol dependent individuals in the slightest, the meaning of the term "relapse" had to be changed. Thus, according to O'Malley et. al. (1992), a patient has not relapsed on alcohol if they can consume 4 or less drinks a day (for men) or 3 or less drinks per day (for women). Most serious addictions treatment professionals would scoff at this redefineition of relapse. But it allows O'Malley et. al. to calculate a statistically significant effect of Revia on alcohol consumption, which in essence means that Revia's efficacy requires that a patient drink alcohol! Similarly, the Physician's Desk Reference (1999) briefly discusses efficacy for various SSRIs in the treatment of depression. Most of the double-blind, placebo-controlled studies for commonly prescribed selective serotonin reuptake inhibitors (SSRIs) such as Prozac and Zoloft have shown efficacy for 6 to 8 weeks. What these studies fail to mention is that compared to placebo, these drugs generally show no therapeutic advantage after a few months of treatment. These studies had to be cut off in that relatively short time-span or efficacy could not be demonstrated. Once again, positive outcomes are redefined to fit the needs of the investigators or the marketing objectives of the drug manufacturer, rather than the long-term needs of the patient.

The only studies known to the author to have measured long-term (greater than 1 year) improved outcomes (defined as psychoactive substance abstinence) are psychological and functional medicine interventions. Outcome-based studies that combine the methodologies of these 2 positions suggest that long-term abstinence rates can be achieved in roughly 4 out of 5 individuals. More studies measuring long-term rates of complete abstinence from psychoactive substances are sorely needed, especially in the emerging field of energy medicine. Combination approaches employing mild coercion early in treatment (threats of punitive action – the morality position), psychopharmacological agents for detoxification and short-term stabilization (the psychiatric position), psychotherapy and peer support groups (the psychological position), physiological restoration based on laboratory testing, as in the case presentation above (the functional medicine position), and energy balancing (the energy medicine position) would likely achieve the best outcomes. Merging the intervention strategies of all 5 positions simultaneously could conceivably generate long-term, positive outcomes, as defined by abstinence from psychoactive substances, for better than 9 out of 10 individuals.

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