

Reversing Chronic Disease through Functional Medicine: Acknowledging Privilege and Seeking Justice

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This piece is based on twenty-eight months of digital-auto-ethnographic research. While my research methods included traditional ethnographic research in face-to-face settings and digital ethnography, my personal experience is also embedded in the work. In this piece, you will find “interludes” that provide glimpses into my healing journey. When writing in this autoethnographic register, I provide “thick descriptions”¹ (Geertz 3) of how I experienced illness and recovery. By including my own story, I am acknowledging that the observed and the observer are inextricably intertwined. All ethnography is relational. Ethnographic data results from a trusting relationship between ethnographer and participant. Furthermore, in autoethnography, the researcher turns the ethnographic lens upon themselves. I expand the potential purposes for conducting ethnography to include personal healing and recovery. These “interludes” demonstrate what is at stake for patients of functional medicine; add (auto)ethnographic texture; and preface my arguments about nested ecologies, the social microbiome, privilege, and health and food justice.

Functional medicine is a model that has been shown to produce better outcomes than conventional medicine in a 2019 study published in the *Journal of the American Medical Association* (Beidelschies et al.). Functional medicine is a personalized and holistic approach to treating chronic disease. It is both an alternative to, and an outgrowth of, conventional medicine. Many functional medicine doctors are conventionally trained. These doctors turned to functional medicine after becoming frustrated with a healthcare system that pharmaceuticalizes health problems instead of seeking to create lasting health. Thus, functional medicine presents a series of paradigm shifts to conventional medicine. One primary paradigm shift is the switch from the body-as-machine model to a “systems biology” approach—which acknowledges that every part of the person, and their environment, are thoroughly interconnected. Functional medicine uses systems

¹“Thick description,” a term coined by anthropologist Clifford Geertz, is a detailed, “fleshy” account of field experiences that provides context and interprets the meaning of human actions and behaviors. It goes beyond describing facts and events through careful and systematic observation, self-reflexive analysis of the researcher’s own assumptions and biases, and empathy with the participants’ perspectives and experiences.

biology to identify root causes and, ultimately, promote healing and recovery. This involves exploring patients' biochemical individuality, and may incorporate tools such as gut microbiome² testing and genomic profiling.³ The following interlude begins to demonstrate how “systems biology” unfolds in a single person's life.

Before I was born, my mother was diagnosed with an “irritable uterus”—beginning in the fourth month of pregnancy. Doctors gave her betamimetics,⁴ including Terbutaline, to develop my lungs as they anticipated I would be born very premature. Two years before my birth, researchers in gastroenterology found “Terbutaline decreased the sigmoid motility index⁵ both in healthy subjects and in patients with the IBS [Irritable Bowel Syndrome]⁶” (Lyrenäs 1). When we both returned home from the hospital, my mom breastfed me until she returned to work several weeks later, at which time her milk dried up and she switched me over to formula, but I “projectile vomited” every time she tried to feed me.

When I was six, I began having terrible cystic acne.⁷ Genetic testing has revealed that I am less efficient than “normal metabolizers” at ridding my body of harmful estrogen metabolites.⁸ As a child, I was exposed to both “natural” estrogens⁹ and environmental xenoestrogens (in rBST-treated dairy products,¹⁰ steroid-injected beef, and BPA-laden food),¹¹ which accumulated in my body. A dermatologist put me on oral and topical antibiotics. I took the oral antibiotics for years, and used the topical antibiotics for nearly two decades—unknowingly causing severe damage to my microbiome.¹²

When I was about eight, I started to have migraine headaches. I took ibuprofen every day, an adult dose (four tablets), sometimes more. Ibuprofen, among other NSAIDs,¹³ has direct antimicrobial properties that can damage the microbial composition of the gut. I had severe constipation, which was exacerbated by poor diet. I remember a two-week period in the seventh grade when I ate nothing but ramen. When I was fourteen, I was diagnosed with IBS. The gastroenterologist who diagnosed me suggested that a low-fat, high-fiber diet would help me with my IBS symptoms. Acting on

²Gut microbiome refers to the ecosystem of microbes that live in your intestines.

³Genomic profiling refers to the laboratory analysis of a person's genes and how they interact with the environment.

⁴Betamimetics are drugs used to treat preterm labor by inhibiting uterine contractions.

⁵The sigmoid motility index is a measurement of the sigmoid colon's motor activity.

⁶Irritable Bowel Syndrome is a digestive condition characterized by abdominal pain, cramping, bloating, gas, diarrhea, constipation, or a combination of both.

⁷Cystic acne is a severe form of acne characterized by red, inflamed, puss-filled lesions deep within the skin that can be tender to the touch.

⁸Estrogen metabolites are substances that are produced when the body breaks down estrogen.

⁹Here, I am using quotes to signal how “natural” and synthetic hormones are used at *unnatural* levels in cattle farming.

¹⁰Recombinant bovine somatotropin (rBST) is a synthetic hormone injected into dairy cows to increase milk production.

¹¹Bisphenol A (BPA) is a chemical used in polycarbonate plastic and epoxy resins that is remarkably similar in chemical structure to synthetic estrogen and has been shown to activate estrogen receptors.

¹²Although the “microbiome” is usually used to refer to the gut microbiome, the human microbiome, in fact, includes all microbes living on or in the human body.

¹³Nonsteroidal anti-inflammatory drugs used to reduce pain, inflammation, and fever.

this advice, I turned to a high-carb, wheat-heavy diet. From the perspective of functional medicine, this only worsened my future diagnoses of Small Intestine Bacterial Overgrowth (SIBO), celiac disease,¹⁴ and leaky gut.¹⁵

My early childhood signals some of the ways an individual's microbiome can become damaged (i.e., as a side effect of medications, shortened or lack of breastfeeding, health-harming practices that are prevalent in Big Agriculture, environmental toxins, and resulting hormonal shifts). I argue alongside fellow anthropologists and functional medicine interlocutors that the health of humans, environment, and economy are interdependent. Threats to the microbiome are greatest for people of color and those living in poverty. At the same time, activists point to how marginalized communities are less likely to have access to healthy food and neighborhood green spaces (Agyeman 88). I will describe both in turn.

Food justice (i.e., equitable access to nutritious food) goes hand-in-hand with health justice (i.e., equitable access to health) since food is a primary health-sustaining resource. In this vein, Andrea Freeman introduces "food oppression" (Freeman 2221). Dr. Mark Hyman, a functional medicine expert, takes Freeman's argument a step further when he writes, "We talk of food deserts and food swamps, but perhaps a better term is 'food apartheid,' an embedded social and political form of discrimination that recognizes that these areas of food disparity are not a natural phenomenon like deserts" (Hyman 226). Dr. Hyman explains "food apartheid" is increasingly used to describe how, through lack of real food and overabundance of processed foods, food oppression makes people of color sick, fat, and disabled. Both Dr. Hyman and Freeman contribute to food justice critiques regarding the whiteness of community food security and argue for food access in low-income communities of color. In Dr. Hyman's view, "food apartheid" disables and kills more people of color than anything else (236).

Food justice organizations, attempting to do the abandoned work of the neoliberal state, take responsibility for the provisioning of food in low-income and minority communities. In so doing, they inadvertently allow the dismantling of food assistance programs. While farmers' markets, Community Supported Agriculture, organic farms, community gardens, food-justice organizations, and small-scale family farms are on the rise, these creative alternatives do not contest state and corporate power, and may, thus, reproduce neoliberal forms of governance (Guthman, *Neoliberalism and Food Politics* 1177). While these examples of community action are beneficial, they can also reinforce the idea that community groups are responsible for addressing problems that are systemic in nature.

At the same time, these strategies can neglect socioeconomic and racialized inequality. Food scholars have described how farmers' markets and other sustainable agriculture venues are primarily frequented by whites and, through discourse circulated in these spaces, become culturally coded as white (Guthman, "Bringing Good Food to Others" 439; Slocum, "Anti-racist Practice" 342; Slocum, "Whiteness" 525). Seen

¹⁴Celiac disease is a chronic autoimmune disorder in which the body's reaction to gluten damages the small intestine and prevents the body from absorbing nutrients from food.

¹⁵Leaky gut occurs when an impaired intestinal barrier allows toxins to enter the bloodstream, triggering an inflammatory response that can lead to disease.

through an intersectional lens, phrases such as “getting your hands dirty in the soil” signal an agrarian past that is more easily romanticized by privileged whites than impoverished people of color (Guthman, “If Only They Knew” 389). As an intersectional scholar, I point to how socioeconomic privilege is embedded in romanticization of “getting your hands dirty in the soil.” In this vein, Dr. Deanna Minich, a functional medicine practitioner, explains how she is implementing her desire to enrich her gut microbiome with soil. She says, “Sometimes I’ll go out in the garden and I maybe won’t clean something probably as well as I would have, as if I bought something from the store” (*The Human Longevity Project* 1:05:42–48). As someone who has focused on improving microbiome health as part of my health journey, I acknowledge that exposure to chemical-free dirt can have positive health outcomes. At the same time, as a medical anthropologist, I signal how functional medicine practitioners’ microbially-optimized gardens are markers of privilege since growing organic vegetables requires multiple resources: land, education, and time.

Instead, I argue for the role of the state in “mainstreaming” regenerative agriculture. Dr. Hyman comments, “Remarkably, food that is good for you is also good for the environment, our depleted soil, our scarce water resources, and the biodiversity of plants, animals, and pollinators, and it helps reverse climate change” (Hyman 55). In so doing, he argues regenerative farming as integral to both environmental stewardship and human health. Since food policies shape both the natural environment and human health, food policy reform must address human-environment linkages.

Dr. Prescott and Dr. Logan, functional medicine practitioners, have academically defined “grey space” as neighborhoods characterized by clusters of fast-food outlets serving ultra-processed foods, sedentary screen time, lack of access to quality health care, factories, pollution, and billboards cajoling an unhealthy “lifestyle.”¹⁶ In contrast, describing the work of their friend and colleague, Richard Mitchell, Dr. Prescott and Dr. Logan emphasize how neighborhood greenness is a marker of socioeconomic privilege. I disagree with Mitchell et al.’s proposal that access to “green space” is an answer to socioeconomic inequality and health inequality (Mitchell et al. 82). They found that mental well-being is socioeconomically determined, but that the effects of socioeconomic inequality can be ameliorated by up to forty percent if individuals had good access to green areas (83). Mitchell et al. write, “If societies cannot, or will not, narrow socioeconomic inequality, research should explore the so-called equigenic environments—those that can disrupt the usual conversion of socioeconomic inequality to health inequality” (84). Dr. Prescott and Dr. Logan support this assertion, writing, “In an urban environment, a vegetation-rich shared commons with some water and diverse wildlife is a living, breathing, omnipresent disruptor of inequality” (100). While I support the “greening” of poor neighborhoods, I argue that planting trees is *not* a sufficient response to the pressing concern of socioeconomic inequality.

Socioeconomic poverty (and, thus, microbial poverty) can be observed at the neighborhood level. Dr. Prescott and Dr. Logan connect dysbiosis (a microbiome that is out of balance, leading to pathogenesis) to income inequality. They argue that lack of exposure to diverse microbes is, in and of itself, a form of impoverishment (87).

¹⁶See my critiques of “lifestyle” at the end of this piece.

Overlapping microbial and socioeconomic poverty, in turn, undergirds booming rates of noncommunicable diseases such as type 2 diabetes, cardiovascular disease, asthma, allergies, autism, depression and other mental disorders, autoimmune conditions (e.g., Crohn's disease, ulcerative colitis, celiac disease), and neurodegenerative diseases. Looking beyond individual health, I argue that social diversity is critical for the health of society. Given that social diversity and microbial diversity are intertwined, interactions between different groups of people quite literally diversifies the gut microbiome of diverse actors. Through equitable access to nutritious food and natural environments, a socially just society promotes equitable access to microbial diversity.

When I reached menarche, my periods were up to eleven months apart. At age fifteen, my OB/GYN recommended I take the birth control pill to “regulate my cycle.” I took the pill for the next fifteen years. However, due to my genetic uniqueness, ingesting synthetic estrogen on a daily basis in the form of birth control pills was definitely hazardous.

In college, I developed cholinergic urticaria and photosensitivity (i.e., an allergy to heat and sun). This was either due to histamine intolerance¹⁷ or mast cell activation syndrome¹⁸—I’ve never been properly diagnosed—and lasted for the next thirteen years. An allergist recommended three types of antihistamines (targeting H1 and H2 receptors, etc.) taken through five pills a day. Not wanting to take so many medications, I chose instead to avoid sun and heat. Demonstrating how underlying causes can lead to multiple health problems, my total avoidance of the sun for years on end contributed to my subsequent vitamin D deficiency.

By the time I began my PhD studies at UC Berkeley, my frazzled immune system made me vulnerable to common viruses, putting me in bed for a year. I was also diagnosed with Cervical intraepithelial neoplasia (CIN) 3,¹⁹ despite having been vaccinated with Gardasil,²⁰ receiving normal Pap smear results each year, and testing negative for Human papillomavirus (HPV).²¹ Meanwhile, my immune system was on triple-duty protecting me from diseases like typhus,²² which I was exposed to while conducting ethnographic research for my first book.

My experience is demonstrative of systems biology. Viral hits to my immune system, combined with long-term oral contraceptives, vitamin D deficiency, multiple

¹⁷Histamine intolerance is a condition where the body has difficulty breaking down histamine, a naturally occurring chemical found in certain foods, leading to a buildup of histamine and causing allergy-like symptoms like headache, skin reactions, digestive issues.

¹⁸Mast cell activation syndrome is a condition where mast cells release too many chemicals like histamine, leading to symptoms including hives, swelling, flushing, diarrhea, dizziness, abdominal pain, and even life threatening anaphylaxis (severe allergic reaction that can lead to shock, drop in blood pressure, and narrowed airways).

¹⁹CIN-3 is a precancerous condition characterized by severely abnormal cells on the surface of the cervix, also known as high-grade dysplasia.

²⁰Gardasil is a vaccine that trigger's the body's immune system to produce antibodies to fight nine types of HPV.

²¹HPV is a group of viruses spread by skin-to-skin contact that can cause some types of cancer, including cervical cancer.

²²Typhus is a group of bacterial infectious diseases that are spread to humans by fleas, lice, and chiggers. Symptoms include fever, headache, chills, bodyaches, cough, digestive issues, confusion, and rash.

single nucleotide polymorphisms (variations in a single base pair in a DNA sequence; SNPs), and a three-generation family history of cervical cancer and dysplasia left me vulnerable to the spread of abnormal cells on the surface of my cervix.²³ Furthermore, birth control pills likely played a role in my worsening gut symptoms since they have been shown to increase leaky gut, contribute to gut dysbiosis, induce intestinal inflammation, and impair nutrient absorption.²⁴

Functional medicine practitioners point to the effects of the external environment on the body. For example, when my gynecologist recommended the pill, she was following the standard of care. Since 1960, adolescent girls have been placed on birth control pills for “menstrual regulation” (Liao e758). This history is linked back to second wave feminism, the separation of womanhood and motherhood, and the increased presence of women in the workplace (Johnson 63). At the same time, my Vitamin D deficiency was worsened by my lack of exposure to sunlight—exemplifying how the external environment directly effects our bodies. Living in Mexico for several years in a region with more than ten times the safe limit of arsenic in the water (see, Alarcón-Herrera, et al.; Fisher et al. 401; Galetovic Carabantes and de Fernicola 365)²⁵ and a lifetime of eating arsenic-contaminated rice²⁶ placed me at a greater risk for developing cervical cancer, despite not having HPV. Also, my extended research trips to impoverished, rural areas characterized by a lack of infrastructure, overcrowding, fleas, lice, and chiggers put me at risk for contracting typhus.

I offer the concept of “nested ecologies” in order to illuminate how systems biology extends beyond the body to the surrounding environment, thus linking “internal” and “external” ecologies (Vega 9). This ecological thinking, applied to the human body, represents a paradigm shift in medicine. In the existing medical approach, separatism (approaching different organs in the human body as discrete entities) makes it difficult to identify connections among different symptoms and organ systems; it obscures from view connections between the body and its surrounding environment. Dr. Hyman linked this oversight to silos and reductionism in medicine—that is, when different medical specialties, practicing in isolation from other specialties, treat only the symptoms related to their area of expertise, thus failing to take a systems approach to the body and address underlying causes. In essence, the very organization of the healthcare system obfuscates the effects of humans on the environment, and, conversely, of the environment on human health.

However, ecological thinking does not, in and of itself, represent a change in social values or an awareness of privilege and disadvantage. Thus, I offer the concept of “nested ecologies” to describe how systems biology extends to the environment *and*

²³Experiences like mine, unfolding in the absence of HPV, point to new potential therapeutic targets for cervical cancers. See, The Cancer Genome Atlas Research Network. “Integrated genomic and molecular characterization of cervical cancer.” *Nature*, vol. 543, no. 7645, pp. 378–384, <https://doi.org/10.1038/nature21386>.

²⁴See, Danner, Bridget. “How Birth Control Affects Your Gut.” *Bridgit Danner Lac. FDNP*, 8 Dec. 2018, www.bridgitdanner.com/womens-wellness-blog/how-birth-control-affects-your-gut.

²⁵According to USGS data on arsenic contamination in U.S. water supplies, the arsenic level in Sacramento, CA where I grew up (5 µg/L) can also contribute to cancer over time.

²⁶<https://www.fda.gov/files/food/published/Arsenic-in-Rice-and-Rice-Products-Risk-Assessment-Report-PDF.pdf>

makes space for issues of inequality. I am offering “nested ecologies” as a heuristic tool for understanding how functional medicine uses systems biology to contextualize bodies within ecological environments. Thus, “nested ecologies” is shorthand for how functional medicine providers view complex environmental factors as forming part of, and playing a determining role in, the health of an individual’s biological system. Through “nested ecologies,” I am furthermore presenting a visual analogy, since, like Matryoshka dolls, the internal ecosystem within the body is shaped by the external ecosystem that surrounds it. This multilayered analogy encapsulates “situated” and “exposed” biologies (Lock 11; Wahlberg 313), and the external ecosystem which encompasses political, economic, social, and physical factors.

I had an initial intake visit with an internal medicine physician in October 2018. She did a round of exploratory labs and by November she had diagnosed me with chronic fatigue, chronic Epstein Barr²⁷ (with titers²⁸ 38 times the “positive” cutoff), an MTHFR SNP (heterozygous for C677T, effecting methylation),²⁹ a burgeoning autoimmune process (based on a positive lab result for antinuclear antibodies),³⁰ and hypothyroidism³¹ (low T3). She began treating me for hypothyroidism with liothyronine. Despite low T3 (overall production of triiodothyronine) in comparison to the average individual, my Free T3 (triiodothyronine that is not bound to a protein so it is available to enter tissues where it’s needed) tends to be normal. Free T3 is the better indicator to use when assessing a patient’s need for triiodothyronine; however, Free T3 is not usually tested by conventional medicine doctors. Since I had sufficient Free T3, taking liothyronine essentially induced hyperthyroidism, giving me heart palpitations, tremors, anxiety, and insomnia.

I became wary of the iatrogenic effects of pharmaceuticals.³² I began to take matters into my own hands regarding my pursuit of health. I ordered a number of direct-to-consumer labs to detect food sensitivities and use that information to guide a gut healing protocol for myself, thus healing my IBS and SIBO. Also, after discovering IgG³³ reactions to BPA and mixed heavy metals, I took binders for several months to help remedy the problem.

This marked a turning point for me as a bioconsumer since I had to exercise my socioeconomic privilege in new (and expensive) ways. I identified a functional medicine doctor I could afford and is very well regarded in the functional medicine community. I also located a functional nutrition team who was willing to work with the doctor I selected. The doctor and nutritionists were located in different states, and were all more

²⁷Epstein-Barr virus (EBV), or herpesvirus 4, is a viral infection that spreads primarily through saliva. An estimated 95% of U.S. adults experience an EBV infection in their lifetime (“Epstein-Barr Virus”).

²⁸A titer is a measurement of the concentration of antibodies present in a patient’s blood.

²⁹Methylation is a biochemical process which involves adding methyl groups to DNA or RNA, thus altering gene expression and protein production.

³⁰Antinuclear antibodies (ANA) attack the nucleus of healthy cells in the body.

³¹Also known as underactive thyroid, hypothyroidism is a condition where the thyroid gland does not produce enough hormones, leading to fatigue, weight gain, trouble tolerating cold, joint and muscle pain, constipation, dry skin, and thinning hair.

³²Iatrogenesis is when prescription medication causes harmful complications or disease.

³³Immunoglobulin G (IgG) is the most common antibody found in blood circulation. IgG for antibodies for particular substances in one’s environment increase when the individual is exposed to that substance.

than two thousand miles away from where I live in Texas. This did not pose a problem, since we were able to communicate as a team via video conferencing, telephone, and email.

Today, I am stronger than I have ever been, and healthier than I was even as a small child. Over the course of this journey, my month-long Medical Symptom/Toxicity score³⁴ has fallen from 103 to seven. Less than ten is considered optimal. Looking back, I am in awe of how extraordinary my recovery has been. My laboratory tests have consistently been negative for autoimmunity. My blood levels for heavy metals are in the normal range. My pap smears have not detected any HPV or cervical dysplasia in the past six years. Beyond merely addressing nutritional deficiencies, I have learned how to optimize methylation through diet. My symptoms of estrogen dominance are melting away. I no longer have migraines or fatigue. While I am no longer taking thyroid medication, my thyroid symptoms have also improved. By ceasing the medication, my irregular heart arrhythmia has stabilized.

I no longer have histamine intolerance, seasonal allergies, disordered activation of my mast cells, nor cholinergic urticaria—allergies to the sun. My test results were also negative for leaky gut and SIBO, and I consider that I no longer have IBS. My periods have steadily dropped from 86 to thirty days apart. My husband and I were blessed with a natural, unassisted pregnancy and a healthy baby girl.

I am well today because of the vast out-of-pocket expenses we paid at every turn of my healing journey. During 2019, the year the majority of my healing occurred, my out-of-pocket health expenses totaled \$22,898. This figure includes a few medications, lots of supplements, occasional doctor's visits, nutrition counseling, and extensive lab testing. This figure excludes research-related costs (like registration for continuing medical education and fees for online courses), indirect, health-related expenses (such as organic food at the supermarket and "clean" cosmetics), and expensive modifications we made to our house (including exchanging old carpet for tile and installing a whole-house water filtration system). The true costs of holistic health are actually much greater than what this enormous figure suggests.

By recognizing that I *purchased* my recovery—an option that is out of reach for most people—I am calling out and critiquing my own privilege. The privileged elite can afford to live unaware of how the majority struggle economically, and how certain resources and types of care are inaccessible to many (Rogerson 167). I argue that for inequity to be remedied, inequity must first be acknowledged. Thus, I am intentionally attentive to how intersecting race- and class-based inequalities structure who is able to recover from chronic disease and how these inequalities are, at times, inadvertently reinscribed by well-intentioned functional medicine practitioners seeking to reverse chronic disease.

When some functional medicine practitioners and health educators speak about "lifestyle" as a "choice," they seem unaware of how their assertions are situated within their own middle- and upper-class lives (Haraway 583). The type of food that people eat

³⁴The Medical Symptom/Toxicity score, based on patients' responses to a questionnaire, helps to measure a person's current status on a spectrum of health and disease.

is shaped by where they live, what they have access to, what foods cost, and what they can afford. Furthermore, people have different degrees of education in nutrition—which is related to economic capital and is a form of cultural capital (Bourdieu 114). Who we hang out with—our social network—is also a form of capital.

I suggest that functional medicine practitioners and health educators recognize how their own perspectives and choices are framed by their relative socioeconomic power. This type of hyper-self-reflexivity (Kapoor 637) would help reorient functional medicine’s current conversation regarding positive “perspective” and correct “choices” toward issues of social justice. At the same time, I offer “nested ecologies” as an invitation for more functional medicine practitioners to refocus on how social, political, and economic factors figure into systems biology.



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