

A Different Approach for Understanding the Riddle of ME/CFS

Here, I will propose an alternative approach to treating ME/CFS. I want this to be readable, which means that I will leave out the more technical aspects. One question that should be addressed upfront is “Why an alternative approach rather than furthering an existing approach?” This is a fair question.

The most important reason, I think, is due to the fact that despite our best collective efforts, there remains no FDA approved drug or treatment option for people suffering with the disease. There are drugs and treatment options that seem to help certain subsets of patients, but still nothing that works across the board for everyone. An informed reader will, of course, know that the reason for this is likely because ME/CFS is a constellation of symptoms that get lumped together under one umbrella diagnosis. Or, it might turn out that what we think of today as ME/CFS is actually more than one disease that activates/deactivates/operates upon a common pathway. Or, it could be that while it is the same disease, it changes phenotypically throughout an individual’s life course—meaning that while the etiology/cause of the disease remains the same, the disease process differentiates itself inside the patient over time. What I have in mind is something similar to what is seen in other rare genetic diseases. For example, in Phelan-McDermid Syndrome (PMS), the actual etiology/cause and diagnosis remains the same, but the disease seems to change as patients age. Practically speaking, children and youth with a diagnosis of PMS may suffer from a base layer of symptoms that remain fixed throughout their lifetime. As they age, though, newer symptoms emerge and become more pronounced. Rather than thinking of ME/CFS as a static disease, my hypothesis is that it is much more like an ocean in the sense that symptoms surge and recede over time. Because the genetic pool of patients is different, if even only slightly, the results can diverge over time. Even if none of this turns out to be the case, the approach that I’m advocating can still work.

It is simple, really. In statistics, we typically look at data sets and, depending upon the nature of the object under consideration, we will isolate outliers (the data points that skew the results) and toss them out. I would like for us to consider doing the opposite, so that we can take whatever exists at the extreme ends and let that inform the mean. Let’s consider a practical way that this might work. In ME/CFS, there are those who suffer so terribly that they must remain motionless in a dark, quiet space. Even the act of breathing or eating is a gargantuan task. There are others who don’t suffer quite as awfully, but they still get sick frequently and experience punishing fatigue and/or pain beyond belief. Still, there are others who seem able to function in a quasi-normal manner until they experience a routine infection or stressful event that is built into the framework of existence. These patients get floored, as it were, and almost return to where they first started on their ME/CFS journey. While it isn’t quite the same as the precipitating event that brought about ME/CFS, it resembles it. And, though it takes time, as long as these patients stay within their daily energy envelope and don’t get into the red, they slowly climb their way back up to the quasi-normal but suboptimal space where they were. All of this is important and has confounded progress towards a treatment and possible cure for the disease. But what if we thought differently about the approach?

What if we looked at outliers from other communities and allowed that information to inform the kinds of treatment options we considered for ME/CFS. For instance, what is it that extreme endurance athletes have in common that allows them to function in a manner that is so dramatically different from ME/CFS sufferers? What is it that allows Himalayan Sherpas to function beyond what one would expect, given that they have significantly less mitochondrial volume density than even sedentary individuals? If

you have ever been at or beyond elevation, it gives you a hazy glimpse into the daily life of a ME/CFS patient. Extreme fatigue, brain fog, sensitivity to light, nausea, unrefreshing sleep, refractory pain etc. What do ME/CFS patients have in common with people experiencing altitude?

Step 1: Let's begin partnering with industry leaders in artificial intelligence (AI), like DeepMind, in order to build complex computational models of these groups.

Step 2: Test for everything under the genetic and physiological sun (exercising and resting) and input the information, along with all extant literature on extreme endurance athletes, Sherpas, and ME/CFS patients, into a neural network.

Step 3: Use the computational capacity of the AI to identify any unique molecules or byproducts that can explain differences (within and) between groups.

Step 4: Based upon a sufficiently complex computational model of each group, allow the AI to stress test the extreme endurance athlete group and Sherpa group in order to see what, if anything, could cause them to resemble that of the ME/CFS group.

Step 5: Based upon a sufficiently complex computational model of each group and the information obtained in Step 4, allow the AI to examine what, if anything, could move the ME/CFS group closer to the extreme endurance athlete group and Sherpa group.

Step 6: Allow the AI to set information obtained in Step 5 against all known molecules and substances that could accomplish Step 5.

Step 7: Allow the AI to evaluate the safety and efficacy profile of that identified in Step 6 when applied to the computational model of the ME/CFS group.

Step 8: Begin testing the viable outcomes of 7 in mice.

Step 9: Begin testing viable outcomes of 8 in humans.