Silent Crisis: Understanding Mitochondrial Dysfunction

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Last Thursday, Robert F. Kennedy, Jr. withdrew (kind of) from the 2024 presidential race. He didn't have to, and in the case of 40 out of 50 states, he actually didn't. But, he also didn't have to endorse Donald J. Trump, and yet he did. As I waited for his press conference, I wondered: What could drive a lion of Democratic party royalty to side with Trump? The answer turned out to be a trio of existential crises. As RFK Jr. explained, he and Trump are aligned on three critical issues, and they are of such existential importance that he was willing to set aside their differences to work together.

Beyond being a refreshing break from the mind-numbing drumbeat of Trump's opposition, RFK Jr.'s remarks were a stark reminder of why two-thirds of Americans believe the country is

moving down the wrong track. He first took aim at the military-industrial complex's perpetual provoking of foreign wars and followed up with the alarming assault on free speech. These were, however, just the warmup acts for his primary grievance: the moral and legal corruption of the food and pharmaceutical industries, assisted by their captured agencies, e.g., the FDA and USDA.

RFK Jr. cited horrifying statistics and catastrophic trends, highlighting the surge in chronic diseases, cancer, neurodevelopmental disorders, metabolic syndrome, and Alzheimer's disease. He then laid the blame squarely at the feet of Big Sugar, Big Ag, Big Pharma, and the cabal of government sycophants who do the bidding of their corporate sugar daddies (pun intended). Sprinkled among the sickening stats, he made multiple references to **mitochondrial dysfunction,** a term many may not fully understand. If we are going to forcibly reconstruct several industries, along with their regulatory agencies, over this medical crisis, we'd do well to understand what it is we're battling. So, what exactly is mitochondrial dysfunction, and why is it being blamed for such a wide range of health issues?

What Are Mitochondria?

As school children learn, mitochondria are the "power plants" of the cell. This rudimentary description of mitochondria is a good start, but it is incomplete. When healthy, these powerhouses also regulate many cellular functions, including growth and death. When they are stressed or dysfunctional, the consequences span cardiovascular disease, autism, schizophrenia, dementia, cancer, and much more.

For example, conditions like atherosclerosis (the build-up of dangerous plaques in the arteries), hypertension, and diabetes, have all been associated with inflammation coupled with mitochondrial dysfunction caused by obesity. Alzheimer's Disease is now referred to as Type 3 diabetes, and researchers are turning their focus away from amyloid plaques, to the dysfunction of mitochondria. Similarly, cancer has long been considered a disease triggered by genetic mutations, but recent research has revealed critical roles played by mutation-triggering free radicals made by dysfunctional mitochondria. Even the aging process is being decoded and shown to mirror the progression of mitochondrial dysfunction.

How Do Mitochondria Become Dysfunctional?

There are several factors that contribute to mitochondrial dysfunction, some of which are influenced by lifestyle choices, but others that are the direct result of the efforts of the food and

pharmaceutical industries. Both profit from a population overeating bad foods, and taking medicines that only mask, but don't fix, the symptoms of the chronic illnesses that result.

It is a national embarrassment that the average American diet, designed and marketed by food companies, approved by regulatory agencies, and even promoted as healthy by advocacy groups (funded by the industry), fails us miserably. According to our own Department of Agriculture, it rates a dismal 11 out of a possible 100 points. How is this possible, you ask? Healthy fats are being replaced by processed carbohydrates, sugars, artificial flavorings, and synthesized oils, all of which damage mitochondria. (It has been said, and it is pitifully accurate, that America's most successful export product has been obesity.)

There are, of course, personal lifestyle choices contributing to this health crisis, including lack of physical exercise and chronic stress. Still, the consequence has been a meteoric rise in medical conditions from chronic fatigue and fibromyalgia to autoimmunity and heart disease. The pharmaceutical industry is filled with extremely bright scientists, many of whom are fully aware of the role of mitochondria in the initiation and perpetuation of these and other chronic diseases. And yet, the products marketed and promoted, much less researched or developed, are seldom cures, which are deemed unprofitable by investors and pharma executives. Worse yet, some medications, especially when used long-term, can harm mitochondria. Drugs from antibiotics to pain relievers have been shown to disrupt mitochondrial function. If mitochondrial dysfunction leads to chronic illness, but chronic medication usage harms mitochondria, a vicious cycle has been set.

What Can Be Done About It?

RFK Jr.'s call is for an overhaul of the food and pharmaceutical industries, and the agencies that regulate them. It appears from his endorsement of Trump that the former president may agree. One thing is for certain – the rise of mitochondrial dysfunction and related diseases is a doom spiral requiring radical individual and societal action. The modern food industry heavily relies on processed foods that are cheap to produce, have a long shelf life, and are addictive. They have been stripped of the nutrients that make them healthy, in favor of making them irresistible to promote overindulgence. Chronic illness is the consequence. Similarly, the pharmaceutical industry, and the captured agency that regulates it, rely on the progressive slide into chronic illness to sell more treatments that mask symptoms but do not treat the root causes. The perverse economic incentives are driving mitochondrial dysfunction.

There is no doubt that we all need to exercise more, and lower our exposure to stress, but to truly battle mitochondrial dysfunction and regain our health, we need to make food and medical decisions differently. As a nation, we need to demand leadership that will change the status quo, and, as RFK Jr. said, Make America Healthy Again.

JP Errico is a highly accomplished scientist with a diverse range of expertise as an executive, entrepreneur, and inventor. He is an expert on the Autonomic Nervous System, and he is the founder of ElectroCore, where he pioneered a non-invasive Vagus Nerve stimulator. JP has been credited as an inventor on over 250 issued US patents. He went to MIT for undergrad and holds graduate degrees in both law and mechanical/materials engineering from Duke University.