Are you a Nutrivore?

An Interview with
Mira Calton, CN and Jayson Calton, PhD

By Nancy Eichhorn, PhD

Picture a vibrant, vivacious 30-year-old woman in the prime of her career—she owns and runs a successful public relations firm in Manhattan specializing in high-end fashion, and film and restaurant promotion. She's flying high on life until she receives life altering news: in one earth-shattering, medical-moment her life is forewarned to change, drastically. Prepare for full time care, she's told, your bones are brittle beyond repair—advanced osteoporosis the culprit, traditional Western medicine unable to offer more than the soon-to-be invalid prognosis.

Now, some women may respond with a *poor me* mentality and succumb. Others may move fast and furious streaking forward grasping at life in complete denial of their diagnosis thus hastening their physical descent into fractures and splints. Our young heroine, Mira, however, moved in a methodical manner—a mission lay ahead. Keen on recovery, she researched options, treatments, and care-givers outside the traditional medical community. She traveled to Orlando, Florida for an appointment with Jayson Calton, PhD, a fellow of the American Association of Integrative Medicine, a Diplomat of the College of Clinical Nutrition, and a Board Certified Micronutrient Specialist (these among a long list of distinguished degrees, certifications, publications, and successful clinical work). He was noted for his nutritional work helping clients with obesity, diabetes, osteoporosis, cancer, celiac disease, depression, migraine headaches, high blood pressure, immune system disorders, and more. Mira met her match—medically as well as romantically. Together they mapped out the course of her skeletal decline and researched ways to both halt the progression and transform it to create a healing trajectory. Their experiences catapulted them into a lifetime career studying micronutrients—any vitamin or mineral that is essential in small amounts for the proper growth and metabolism of living organisms—and helping people achieve optimal health.

"When Mira was first diagnosed and made her way into my office, we looked at how to get the deficient minerals and vitamins she need (*calcium, magnesium, and vitamin K_2*) into her body," Jayson says of their meeting back in early 2000. Jayson understood the nature of micronutrients and their role in health and illness. He knew the delicate interplay between vitamins and minerals—increases in one results in deceased absorption of another—and that homeostatic balance resulted in optimal health. Mira's osteoporosis (her reduced bone mass that lead to increased skeletal fragility and susceptibility to fractures) resulted from micronutrient deficiencies. The key to a cure was in micronutrient sufficiency (Agiratos & Samman, 1994; Allen, de Benoist, Dary, & Hurrell, 2006; Calton, 2010; Watts, 1988, 1990).

"Micronutrient deficiency is the most widespread and dangerous health concern of the 21st century, effecting nearly 100% of the people on this planet," Jayson says. More than 2 billion people in the world suffer from micronutrient deficiencies, which are largely caused by dietary deficiencies of vitamins and minerals, even small amounts can result in detrimental effects (Allen et al., 2006).

Micronutrients: Their role in maintaining health and treating illness

Casimir Funk, a polish biochemist, formulated the concept of vitamins (originally called 'vital amines') in 1912. He was inspired by the work of Christiaan Eijkman who was researching the disease known as beriberi. Eijkman had documented that people who ate brown rice were less susceptible to beriberi than people who only ate fully milled rice. Curious, Funk wanted to isolate the substance responsible. His work resulted in the discovery of vitamin B_3—niacin. A forerunner in the field of nutritional science, Funk researched and wrote extensively about the etiology of deficiency diseases and their treatment (e. g., beriberi, scurvy, pellagra, and rickets). He discovered that many human diseases were caused by a lack of certain nutrients necessary for metabolism (that were readily available in some foods) and thus developed his theory on the interrelationships between vitamins and minerals. Micronutrient deficiency is scientifically linked to the most of the modern health conditions and diseases including a higher risk of being overweight, obesity, cardiovascular disease, cancer, diabetes, osteoporosis, and more (Allen, de Benoist, Dary, & Hurrell, 2006; Calton, 2010; Watts, 1988, 1990).

Based on Funk's work as well as on decades of research that followed, the Calton's predicated their research and work on what they call, 'The Micronutrient Sufficiency Hypothesis of Health': "If a condition or disease can be directly linked to a micronutrient deficiency, then it can be prevented and/or reversed through sustained sufficiency of the deficient micronutrient(s)."

"It may seem simplistic," Mira says. "And it's where we believe nutrition is going. It used to be that fat was bad, calories were bad, just get rid of them and you will be fixed. But now we see other cutting edge nutritionists focusing on micronutrients as well, even Dr. Oz and Dr. Hyman are focusing their work here. When we wrote our first book, *Naked Calories*, the fact that we want to use the word micronutrient scared away almost every publisher. We are trying to educate the public, we are leading the charge to get the word out. Our big goal is micronutrient awareness."

Mira's Turn Around

Jayson and Mira discovered three crucial steps to reverse her osteoporosis and in turn to reverse micronutrient deficiency into micronutrient sufficiency for optimal health. Step one: eat foods that are rich in micronutrients (the FDA has identified 27 essential micronutrients). Step two: drive down micronutrient depletion from your diet and lifestyle habits. Step three: learn your 'ABCs of supplementation'.

Switching to 'micronutrient rich foods' may sound simple enough until you ask, "What are micronutrient rich foods and where do you find them?" Responses may range from eat local, to eat organic and stay away from sugar. Adding to the confusion, there are a plethora of diets to follow including vegan, Mediterranean, vegetarian, low carbohydrate, low fat, Paleo, Primal, low calorie, and gluten free. Regardless of the diet people follow, the Calton's stress that it is not about the diet but about the micronutrients in the food and how the body absorbs them and uses them—micronutrient deficiency is a real concern.

"A low calorie diet means less food and fewer nutrients," Jayson explains. "A vegan diet is 73% deficient in essential micronutrients such as B_{12}, which is found in animal products (and results in low energy), and Omega 3 oils, which mostly come from fish. If you are eating soy, spinach, grains, and legumes every day you are potentially consuming high levels of oxalic acid, which depletes calcium and magnesium. The Paleo diet is the most popular right now. People think they are eating this ancestral diet so they must be getting all they need, but the diet is deficient in calcium and chromium. Low carbohydrate diets mean cutting out an entire class of foods. You are losing and reducing all the micronutrients found in those foods including B_2, B_9, calcium, magnesium, and iron. Gluten free diets are usually followed by those with celiac or who have gut issues to begin with, so they are already dealing with malabsorption. They also experience deficiencies in calcium, magnesium, vitamin D, iron, and B_{12}. The vitamin B_{12} helps keep the amino acid homocysteine at the right level, which may help decrease the risk of heart disease and is essential to red blood cell production (*red blood cells carry oxygen through the blood to the body tissue*)."

Jayson published a study in the *Journal of the International Society of Sports Nutrition* (2010) where he compared four popular diets for 27 micronutrients identified as essential by the FDA for daily intake levels. He compared: The Atkins for Life diet, The South Beach diet, the DASH diet, and The Best Life diet.

> Every disease is directly linked to a nutrient deficiency
>
> commonly attributed to Dr. Linus Pauling PhD, two time Nobel Prize winner.

Micronutrients

1. Vitamins

A. Water Soluble (C, niacin, thiamin, riboflavin, folate, B6, B12)

B. Fat Soluble (A, E, D, K)

2. Minerals

A. Major (iron, calcium, potassium, magnesium, phosphorous, sodium)

B. Minor (selenium, zinc, chromium, nickel)

His results were remarkable. He demonstrated that:

the Atkins diet was 44% sufficient and provided 100% RDI for 12 of the 27 essential micronutrients analyzed

the South Beach diet was 22% sufficient and provided 100% RDI for 6 of the 27 micronutrients analyzed

the DASH diet was 52% sufficient and provided 100% RDI of 14 of the 27 micronutrients analyzed

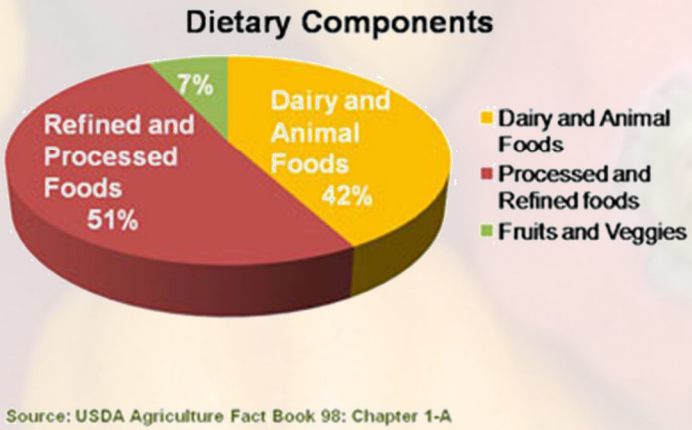
and the Best Life diet was 56% sufficient and provided 100% RDI for 15 of the 27 micronutrients analyzed.

Over all, his study found that "the typical dieter following one of these diet plans would be 56% deficient in obtaining RDI sufficiency, and they would be lacking in 15 of the 27 essential micronutrients" (Calton, 2010, p. 7).

"Micronutrient sufficiency needs to come first and then let your diet philosophy follow behind," Jayson says.

Micronutrient sufficiency relies on food quality. Eating foods with genetically modified organisms (GMO) such as corn, soy, milk, sugar beets, cottonseed, alfalfa, canola oil, and aspartame may lead to toxic side effects; the genetic material (DNA) in these foods are altered in ways that are not naturally occurring. There is no common consensus on their safety: "Different GM organisms include different genes inserted in different ways. This means that individual GM foods and their safety should be assessed on a case-by-case basis and that it is not possible to make general statements on the safety of all GM foods' (Retrieved from http://www.who.int/foodsafety/publications/biotech/20questions/en/).

The American Diet: Designed for Disease



Source: USDA Agriculture Fact Book 98: Chapter 1-A

Furthermore, the standard American diet is composed of "Naked Calories", according to the Calton's, meaning we eat foods that have been stripped of their micronutrients due to farming practices, processing, and manufacturing processes, and even ways of cooking (e. g., microwaves, deep frying). We need to make changes, they say, in what we eat and how we live in order to decrease micronutrient saboteurs.

"We want to educate people in the grocery store where they are face-to-face with food," Mira says, explaining the motivation for their second book entitled, *Rich Food, Poor Food*. "Most people go grocery shopping looking for what's on sale, which brand is cheaper, and what they have coupons for. We want to let them know what the words mean at the end of the list of ingredients and what they are doing to their health. There are a dozen everyday micronutrient-depletion-stealth-habits that deplete the micronutrients we have already have eaten. Things we do every day. We look at what's in the foods we are eating like oxalic acid, tannins, stress in our lives, even exercise. It's supposed to be healthy, but it subtracts from our daily micronutrient sufficiency. We need to drive down depletion. We look at over-the-counter medications. I mean, if you're living in LA, you're not going to move, but we want people to be aware that air pollution depletes micronutrients, and you will require more antioxidants living there."

The ABCs of Supplementation: The Science and the Art

"We are food first people, and we are realists, we've done the research," Jayson says. "You cannot get enough micronutrients on a day-to-day basis without supplementation."

Basically, 50% of the US population pops a daily multi-vitamin; however, about 80% of the micronutrients in those pills are not absorbed. With this knowledge in mind, the Calton's created a multivitamin powder, Nutreince, based on what they call the ABCs; absorption, beneficial qualities, competition and synergy. (for a complete discussion visit: www.ABCSofsupplementation.com).

A is for Absorption. Most vitamins come as a coated pill or tablet, or in chewable or dissolvable form. Pills are difficult for the intestines to break down and absorb. Many pills add sugar to make them more

palatable but sugar blocks the absorption of vitamin C, calcium, and magnesium. There are also many hidden binders, fillers, and flow agents in pills to make them easier for manufacturing. And, they are often coated with shellac or wax to keep the moisture out of the pill but this decreases its solubility in the body. Artificial colors are added, which have been linked to cancer and require warning labels in other countries, including Blue 1 and 2, Red 40 and Yellow 5 and 6. Many multivitamins also have BHA and BHT added, which are known to be carcinogenic.

A Harris Interactive® online study (2003) also found that 40% of American adults have difficulty swallowing pills and thus avoid taking them. Those with irritable bowel syndrome, hernias, and diverticulitis also have difficulty absorbing pill-form nutrients. It is better to drink your supplements, but there's concern in terms of storage and integrity of the nutrients. Just like milk needs to be in an opaque container to maintain its health qualities, micronutrients are depleted by temperature, light, and air.

Buying vitamin infused waters in clear plastic does not help. And it's not just light that causes the breakdown, air does too. Each time you open the container air enters creating oxidation.

"I was taking handfuls of pills all day, before and after every meal," Mira says, recalling when she was first starting her healing process. "Some of them were horse pills, and they were gaging me. I was not about to take 10,000 pills a year for the rest of my life, so we created Nutreince (*a single serving, in powdered form, in foil, that, when added to water is highly absorbable*)."

"It was born of necessity," Jayson says. "It's part of our story. It's who we are. We spent years researching it. We researched all the other multivitamins, and if one had met our guidelines we would have used it."

B is for Beneficial quantities. The amount of each micronutrient in your supplement as well as the form and grade that it comes in to achieve minimal sufficiency is important. There are high grade and low grade forms of each micronutrient manufactured. When your multivitamin says vitamin D—you may be getting D_2 or D_3. "You may be paying for a Porsche but purchasing a Hugo," Jayson says.

Vitamin E comes in several forms. If there's a dl- before your vitamin E on the label that means it is the cheaper synthetic form. The Calton's stress that you want the natural source, which is better retained and biologically active. You want your E to have both tocopherols and tocotrienols for the full spectrum. Folate (aka vitamin B_9), needs to be in the form of 5-methyltetrahydrofolate (5MTHF) for the best conversion. And vitamin K, which is important for blood clotting, is usually given as K_1, if even included at all. However, it's K_2 that aids bone mineralization and is not often in multivitamins.

"Some studies are saying women over the age of 50 should not take calcium supplements. The doctors are reading the studies that say calcium creates a build-up in the arteries, but if you have vitamin K_2 in the body, it will pull it out of the arteries and help it absorb into the bones. If more people were sufficient in K_2, we would have fewer bone breaks. You don't want to stop taking calcium supplements—that's not the solution. After all, where would you get your calcium from? People think spinach. However, spinach has 280 mg in a 10 -ounce package, but the naturally occurring oxalic acid in the spinach

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binds with it so only 28 mg is absorbed. It also binds to other important micronutrients in your food, too, like iron and magnesium." Jayson says.

Timing matters as well. Not all vitamins and minerals are absorbed equally. Water soluble vitamins such as vitamin C and the B vitamins are absorbed and excreted via our urine about every 12 hours. Unless vitamin C is taken twice a day, you are not going to fully realize its benefits, the Caltons' say. Fat soluble vitamins (A, D, E, and K) can be stored in the body and have limited absorption rates. The Caltons' say that taking your multivitamin twice a day with the right combinations and amounts is essential for healthy body functioning.

"Micronutrients will chelate with different heavy metals and toxins," Jayson says. "There may be mercury in fish but if you have selenium, vitamin C, and vitamin E in your system they will draw the mercury out so it can't stay in the body. This is a reason we should chose to eat fish that are selenium rich. Micronutrients are natural detoxifiers. Vitamin D increases the absorption of calcium, and magnesium, and if you are deficient in either of these vitamin D will work to increase lead" (*resulting in lead toxicity*) (Watts, 1990).

"You can't just take one vitamin. It will backfire," Mira says. "Micronutrients are like a symphony—all the players are needed. You can't have just one instrument to create a harmonious sound. If you just take vitamin D, you get more issues. Vitamin D and Vitamin A are antagonists. You can cause night blindness if you reduce the amount of vitamin A you take in. They all work in unison."

C is for Competition. Mineral competition is the game changer, the Caltons' say. "Micronutrient antagonists are the single most important reason multivitamins cannot deliver the benefits of the vitamin," they say. They spent over six years mapping out all of the competitions that they could find proof for in peer reviewed literature. They wanted two separate authors to have found the same information. Forty-five competitors have been well established. The Caltons' even got a US patent for their 'anti-mineral competition'; it's the first time a formulation patent was given for supplements, Jayson says, explaining that most patents are given for the delivery system for example: time release, capsule, tablet, coating.

"We say you can yell at two kids to keep quiet, but it will not happen unless you split them into separate rooms," Mira says. But they reversed her osteoporosis, which is unheard of they say, by creating their unique multivitamin.

It turns out that the body is limited in its ability to absorb all the nutrients in a multivitamin all at once. They compete for receptor sites, and there can only be one winner. The Caltons' explain that there are four times when competition occurs. First: a chemical competition occurs during manufacturing. For example, Zinc is insoluble with B9 in the same mix—when together, neither are absorbed. Second: a biochemical competition occurs after the vitamin is ingested, it may or may not be absorbed at the receptor site. Third: a physiological

competition occurs after the micronutrient has been absorbed—it can cause decreased utilization of other micronutrients. Fourth: a clinical competition takes place where its presence in the body masks the presence of other micronutrients. In fact, the supplement you are taking may be getting in its own way.

For example, a woman over the age of 50 is supposed to get 1200mg of calcium daily. But the body can only absorb up to 600 mg at a time. The quality of the calcium taken is important as well as not being leached from the bones or chelated in some way. If K_2 is there, calcification will not take place. But, calcium is also antagonistic to zinc (it decreases the absorption of zinc creating a deficiency); vitamin D increases calcium absorption, which again, in turn, suppresses zinc absorption (Watts, 1998, 1990). Taking too much calcium, and/or taking it in conjunction with zinc will inhibit our zinc absorption.

Some doctors may address competition by having patients take mega doses of single vitamins. But these high doses interfere with the utilization of other nutrients. Watts (1990) noted a hypothetical case: a patient with osteoporosis may be consuming 800 to 1,000 mg of calcium without appreciable effects. The doctor may up the dosage to twice even three times that and will see results, until the supplementation ends. The patient returns to the pretreatment state. If the competitors and depletors (vitamin E, vitamin A, potassium, and phytic and oxalic foods) were deleted as well as adding in synergists, (vitamin D, magnesium, copper) the patient would respond to 400 mg of calcium.

S is for Synergy. As Watt's (1990) noted, and the Caltons' explain, the opposite of competition is synergy. The Caltons' looked at what micronutrients worked best together to increase absorption (Watts, 1990). They researched which micronutrients were best suited for one another. Just as competition takes place four times, they found synergy occurs four times. Chemical synergy occurs when some micronutrients form an advantageous complex; biochemical synergy occurs when they aid in the absorption of one another; physiological synergy occurs when they aid the performance of the other in the body; and clinical synergy occurs when they are found to work together in observable and yet unexpected ways.

"You have to use anti-competition and synergy," Jayson explains.

"This is a huge paradigm shift—to look at the way micronutrients in supplement form will have more benefits if we understand the competition," Mira says.

The Calton Project

Along with intense and in-depth research, the Caltons' nutritional concepts were also derived from living with indigenous tribes for six years. Their honeymoon, actually, was spent traveling to 100 countries on 7 continents to observe the eating patterns of indigenous tribes and to learn about their nutritional philosophies and their impact on heath.

"There were so many different tribal cultures, so many different styles of diet," Jayson says. "You can get healthy through many dietary pathways; there is no one right diet. We noticed that the diet of healthy people fluctuates with the seasons. They are surrounded by micronutrient rich food; they are micronutrient sufficient at the core of nutritional health.

"All sciences have laws," he continues. "There are chemical laws, physics has its laws, but nutrition doesn't seem to have any laws. It's like the Wild West. We want to create a law that states that micronutrient sufficiency is mandatory to establish optimal health. It is a universal truth that is applicable to all diet philosophies. The truth is, we have people who are sick and fat because of micronutrient deficiency."

The Calton Project: Photo courtesy of Mira and Jayson Calton.

Obesity

According to Jayson, the current contemporary theoretical perspective of obesity is that people are undisciplined, lazy, or are overeaters. It's time to consider it biochemically, he says

"There are people who have lost their weight. They look better, feel better. They are out buying new clothes. They achieved the look they wanted. You would think they should stay at that weight, with that accomplishment," Jayson says. "But there's a voice in there saying eat those French friends, eat that ice cream, go to Dunkin Donuts. They break down and eat. It's not that they are lazy, it's that their body is overriding their brain. They are eating food because of micronutrient cravings, which goes away with micronutrient sufficiency. We've helped thousands of clients suffering from cravings go from no control of their cravings to no cravings. They become sufficient and now discipline and education are enough to maintain their weight loss."

"I used to eat gummy things all day," Mira says. "I went for Swedish Fish for quick energy, but in truth I was depleting the calcium from my bones. Now that I'm calcium sufficient, I don't crave sugar any more."

"People are confused," Jayson says. "They think it's just a habit, and they can change a habit. But they cannot change the actual cravings, the signals their body sends. It's a physiological craving and you have to get rid of that. We are looking in the exact opposite direction. Low calorie diets, diets that restrict intake of food groups, such as gluten or fats, take away the foods you are getting micronutrients from. You are taking out the B vitamins that in turn help us get the minerals and vitamins out of the food derived them. We need to derive and utilize micronutrients. Many nutritional approaches today block our ability to do that."

They shared one last story while we were talking that typified their presence in the field of micronutrients and optimal health. Mira explained that they still answer all of their emails and respond to the postings on their Facebook page and website. A 40-year-old women contacted them. She was a triathlete, a vegan. She having some health problems. Her lab work showed a high level of calcium and a low level of vitamin D. She was reading their book, *Naked Calories*, and realized that she was eating foods high in oxalic acid, which was binding to the calcium and leaching it into her blood *(thus high calcium levels in the lab work*). She went to her doctor and demanded a DEXO scan. The scan diagnosed both osteoporosis and scoliosis. She had already lost two inches of height. Their research, in fact, saved her bone density, and their three-step process will be responsible for her healing.

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