Riordan Clinic

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Riordan Clinic is a world-renowned, academic medical center that has led the world in integrative oncology and complex chronic illness care since 1975. The Riordan Clinic was established as a 501 (c)(3) non-profit organization with missions in research, provider education, and patient education. The Health Hunter Newsletter has been published since 1986 as an educational resource to providers and patients.

How Methylene Blue's Antioxidants Can Slow Cognitive Decline

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Introduction to Methylene Blue

Although Methylene Blue isn't a new antioxidant, medical professionals and researchers are finding powerful new ways to use this synthetic dye in the human body. Studies have shown that Methylene Blue may especially benefit neurological function as we age because it increases blood flow and oxygenation of the brain. [1]

In a 2021 study entitled "The Potentials of Methylene Blue as an Anti-Aging Drug," the authors found that mitochondrial dysfunction is observed in systematic aging that affects many tissues, including the brain and skin, which can lead to increased oxidative stress. [2] The brain has, by far, one of the highest concentrations of mitochondria, considered the "powerhouse" of the cells. Methylene Blue normalizes compromised mitochondrial function in the brain, which can improve brain cell energy production. This can result in improved memory retention. [3]

How it Works

The brain is composed primarily of neurons, each having as many as 100,000 mitochondria. There is a complex biochemical pathway on the mitochondria's inner membranes called the electron transport chain. Electrons are shuttled down the transport chain through three complexes and then are rapidly released into the ATP-forming fourth complex. ATP is an enzyme that transports energy to our cells.

Methylene Blue efficiently passes through the blood-brain barrier and is rapidly taken up by brain cells in high concentrations. As an electron transporter, Methylene Blue increases the number of ATPs produced by the brain's mitochondria. More available electrons also help to lower the concentration of undesirable free radicals.

Brain-Related Conditions Helped by Methylene Blue

The net result of using Methylene Blue is more efficient brain functioning with better control of chronic brain disorders such as:

- Depression
- Parkinson's disease
- ALS (Lou Gehrig's disease)
- Alzheimer's disease

Alzheimer's is one of society's most feared cognitive impairments. Abnormal accumulations of proteins can form plaque around brain cells and form tangles, or twisted strands of protein, within the brain. Oxidative stress and the resultant inflammation of these abnormalities can contribute to cognitive dysfunction.

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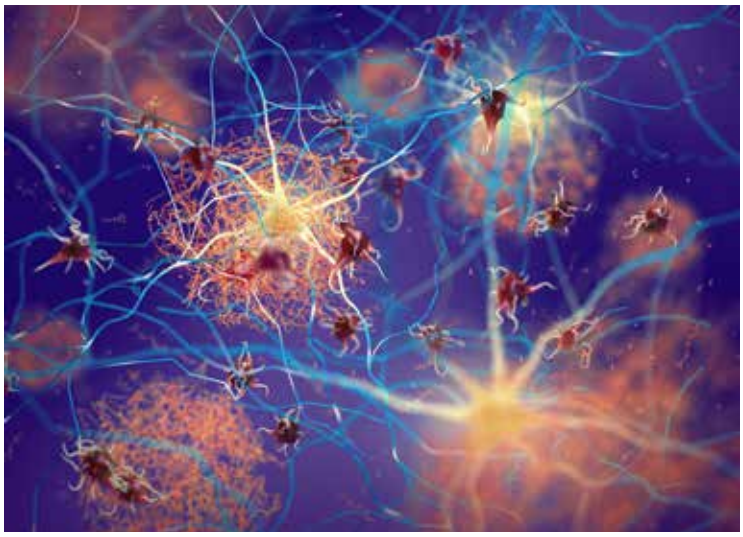

Methylene Blue has a powerful impact on neurological or cognitive problems. In 2019, scientists gave Alzheimer's patients 8-16mg of Methylene Blue daily while monitoring their brain function. They witnessed the Methylene Blue treatment stop Alzheimer's disease dead in its tracks. [4] Treatment with 8-16mg of Methylene Blue daily reduced cognitive decline by more than 85%! Just as importantly, the study found that drugs currently approved for managing symptoms of Alzheimer's disease interfere with the therapeutic benefit of Methylene Blue when administered together. [5]

Methylene Blue and Vitamin C

Methylene Blue and vitamin C have a special synergy in the body – a kind of give-and-take that assists in maintaining healthy cellular energy.

Ascorbic acid is the reduced form of vitamin C. On the other hand, the dark blue methylene dye is an oxidized form. When the two are combined, it creates a clear liquid form called leukoMethylene Blue with increased antioxidant power. Antioxidants are molecules that "put out the fire of oxidation," thereby reducing oxidative stress and its resulting damage at the cellular level.

How to Boost Methylene Blue's Brain Benefits

Electrons are important to Methylene Blue's function, and eating quality food of plant origin is also important. Plants derive and store electron-rich antioxidants from photosynthesis. Therefore, a quality diet consistently brings in new electrons that help to maintain good micronutrients throughout the cells in your body. These micronutrients are especially important to the optimal functioning of your brain.

What Else Can Methylene Blue Do?

Help in treatment of:

- Malaria
- Shock
- Ifosfamide-induced encephalopathy, a brain disorder caused by a chemotherapy medication [8]
- Antidote for cyanide and carbon monoxide poisoning, which is also known as methemoglobinemia, a condition in which blood loses its ability to carry oxygen through the body [9]

History

Heinrich Caro was a German chemist who was the first head of research of Badische Anilin & Sodafabrik (BASF). While working there in 1876, he synthesized a pure blue dye for cotton, Methylene Blue. A year later, BASF was awarded Germany's first patent for a coal tar dye for Methylene Blue. [6] German biochemist Paul Ehrlich studied many dyes for their therapeutic properties. Ehrlich presented a chemical theory to explain the formation of antitoxins and their benefit to the immune response. He shared the Nobel Prize for Physiology or Medicine with Elie Metchnikoff in 1908. [7]

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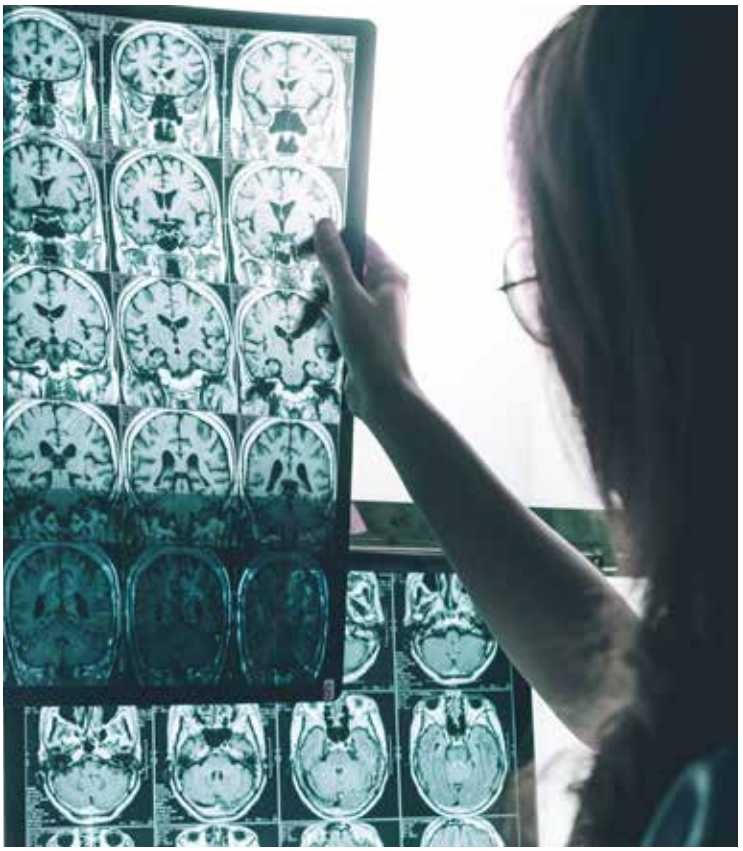

Foods to Benefit Cognition

AUTHOR

Laura A. Stauffer, MSN, APRN, NP-C

A variety of foods can help protect your cognitive health and act in very specific ways in the body.

Neurodegenerative diseases, such as Alzheimer's and Parkinson's, are rising. Characteristics of neurodegenerative diseases include loss of neurons and the build-up of neuro-toxic substances in the brain. Neurotoxicity is caused by exposure to natural or man-made toxic substances and can impact cognitive health. It decreases blood flow and creates inflammation, oxidative stress, and the inability to regenerate healthy neurons. Symptoms of neurodegenerative diseases include memory loss, moodiness, anxiety, depression, and agitation. [1]

Dietary choices can help prevent neurodegenerative disease by promoting healthy neurons. Nutrition is a foundational principle in prevention that can have long-reaching effects. There are several ways that the foods we eat can impact the health of our cells. Below, I will discuss beneficial foods that can help preserve, regenerate, and promote cognitive health.

1. Foods that protect the DNA can help preserve healthy cells and reduce the cellular damage that can lead to neurological disorders. Berries, including blackberries, strawberries, blueberries, and blackcurrant, are all loaded with polyphenols and antioxidants, which are able to cross the blood-brain barriers to reduce oxidative stress in the cells. Berries can inhibit brain inflammation processes, leading to neurodegenerative diseases. [2]

2. Most neurodegenerative diseases exhibit inflammation, as seen with most chronic diseases. Anti-inflammatory foods can help reduce apoptosis (cellular death) and promote healthy cells. Look for Omega 3s from fish and plant-based sources. Consuming enough Omega 3s has been shown to promote cognitive well-being and improve memory recall and learning. Cold water fish such as salmon, mackerel, and sardines contain the highest amounts of EPA/DHA, which reduce inflammatory cytokines. Plant-based sources, such as nuts and seeds, also provide anti-inflammatory effects. The FDA recommends consuming 3 grams daily of Omega 3s from food and a supplement source. [3]

3. A balanced gut microbiome is crucial for several neurological processes, including neurogenesis, mood and behavior, cognition, myelination, and microglia activation. Beneficial foods include greens, sauerkraut, mushrooms, and cruciferous vegetables. Multiple studies regarding Alzheimer's disease and the gut microbiome demonstrate dysbiosis (unbalanced beneficial bacteria) compared to healthy participants. Other neurological diseases, such as Parkinson's and Huntington's, also demonstrate the connection between the health of the bacterial ecosystem and the pathological changes in neurons leading to these diseases. [4]

4. Stem cells are intricate to our survival. Each organ system regenerates new cells within a specified timeframe. A loss of brain stem cells has been identified as playing a role in the onset of dementia. Microglia cells develop from a special kind of stem cell and are responsible for removing toxins and plaques from your brain. Other types of stem cells regenerate new neurons. Foods that benefit stem cells can assist in regenerating healthy neurons. These include apples, onions, herbs such as rosemary, coffee, and purple-pigmented foods.

5. Controlling angiogenesis – the formation of new blood vessels – can help increase blood flow and improve cognitive function. In the appropriate manner, angiogenesis can promote the removal of toxins through increased blood flow and the delivery of oxygen and nutrients. There are certain diseases, such as cancer, where you may want to promote more anti-angiogenesis to cut off the blood supply to the tumor. Foods that promote angiogenesis include apples, onions, ginseng, and seeds (flax, pumpkin, sesame, and chia).

In conclusion, food choices can greatly impact your brain health, help prevent degenerative neurological diseases, and benefit your body and health in other ways. The book "Eat to Beat Disease: The New Science of How Your Body Can Heal Itself" by Dr. William Li, MD, can be a good resource.

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5. Eat to Beat Disease: How the Body Can Heal Itself by Dr. William Li, MD

Cognitive Impairment Symptoms Can Vary

AUTHOR

Melody Spurney

A diagnosis of cognitive impairment can be disorienting and devastating, not only for the patient but for friends and family. Unfortunately, it is also becoming increasingly more common.

Alzheimer's is perhaps the best-known and most common dementia diagnosis in the United States. However, others are also growing, each with unique characteristics. Among them are vascular dementia, Lewy body dementia, and frontotemporal dementia.

Alzheimer's Disease

According to the Centers for Disease Control, Alzheimer's is the most common cause of dementia, accounting for 60 to 80 percent of cases. [1] An estimated 6 million Americans are currently living with Alzheimer's. [2]

Common symptoms include [2]:

- Memory loss, especially of recent names, places, and new information
- Confusion about time and place
- Struggling to complete familiar tasks
- Trouble finding appropriate word
- Difficulty in judgment
- Changes in mood and personality

Alzheimer's is a progressive brain disease, and the risk of diagnosis increases after age 65, with about one-third of people older than 85 estimated to have the condition. In addition to aging, health, environmental, and lifestyle factors may contribute to the risk of developing the disease. [3] Alzheimer's is characterized by abnormal accumulations of proteins that can form plaque around brain cells, which twist strands of protein within the brain, according to Riordan Clinic Chief Medical Officer Dr. Ron Hunninghake, MD.

Vascular Dementia

This form of dementia is a common type of dementia, and symptoms often overlap with those of Alzheimer's and other types of dementia. Unlike Alzheimer's, the most significant symptoms include slowed thinking and problem-solving instead of memory loss. Cognitive problems in vascular dementia are often caused by brain damage from impaired blood flow to the brain. Patients can develop vascular dementia after a stroke blocks an artery, but strokes don't always cause vascular dementia. Other conditions that deprive the brain of oxygen and nutrients can also cause the disease. [4]

Common symptoms include [4]:

- Reduced ability to organize thoughts or actions
- Slowed thinking
- Difficulty with organization
- Difficulty paying attention or concentrating
- Difficulty analyzing a situation, developing an action plan, and communicating it to others

Risk factors for vascular dementia include a history of strokes or mini-strokes. Unlike the usual gradual progression of Alzheimer's, symptoms may occur suddenly after a stroke or series of mini-strokes. However, they can occur gradually as well. Other risk factors include age, high blood pressure, diabetes, smoking, obesity, and a build-up of plaque and cholesterol in the arteries, which reduces blood flow to the brain. [4]

Lewy Body Dementia

Lewy body dementia is another common type of progressive dementia. Unlike Alzheimer's, patients can also experience Parkinson's disease symptoms. This can include difficulty with movement and regulation of body functions related to the nervous system, as well as spontaneous changes in attention and alertness, recurrent hallucinations, and sleep disorders. This type of dementia may be linked to underlying abnormalities in how the brain processes the protein alpha-synuclein, which neurologist Dr. Frederich H. Lewy discovered in the early 1900s. [5]

Common symptoms include [6]:

- Movement problems, such as rigid muscles, tremors, or stiff walking
- Hallucinations
- Fluctuating attention, such as episodes of drowsiness, staring into space, long daytime naps, or disorganized speech
- Depression
- Apathy
- Cognitive problems such as confusion, poor concentration, visual-spatial problems, and memory loss

Risk factors for Lewy body dementia aren't well known. The greatest risk factor is age, although the disease can have a younger onset than Alzheimer's, with most disease diagnosed in individuals age 50 and older. Rapid Eye Movement Sleep Behavior Disorder is considered another risk factor for this type of dementia. This sleep disorder is characterized by dream enactment and can occur many years before the onset of Parkinson-like symptoms or cognitive impairment. [7]

Mixed Dementia

In addition to singular causes of dementia, many patients also have brain changes linked to two or more types of cognitive disease. Common combinations include Alzheimer's and vascular dementia and Alzheimer's and Lewy body dementia. A study funded by the National Institute on Aging (NIA) showed that more than 50 percent of the volunteers in the study whose brains met the criteria for Alzheimer's also had evidence of one or more additional dementias. The NIA study showed that the majority of those found to have multiple dementias were only diagnosed with Alzheimer's during their lifetime. Autopsies of those individuals revealed the co-existing dementia. [8]

Mild Cognitive Impairment

Mild Cognitive Impairment (MCI) is age-related brain changes that do not significantly impact daily life or affect usual activities. While it may progress to dementia, some patients never advance to that point. Studies show that approximately 10-15 percent of people with MCI will develop dementia each year. [9]

Conclusion

While there is no one-size-fits-all dementia diagnosis, Alzheimer's is the most common cognitive disease in the United States. However, symptoms vary to differentiate the types of dementia commonly seen in patients and, at times, overlap to create mixed dementia. The Alzheimer's Association is a resource not only for Alzheimer's but also for other types of dementia. Access descriptions online at https://www.alz.org/alzheimers-dementia/what-is-dementia/types-of-dementia.

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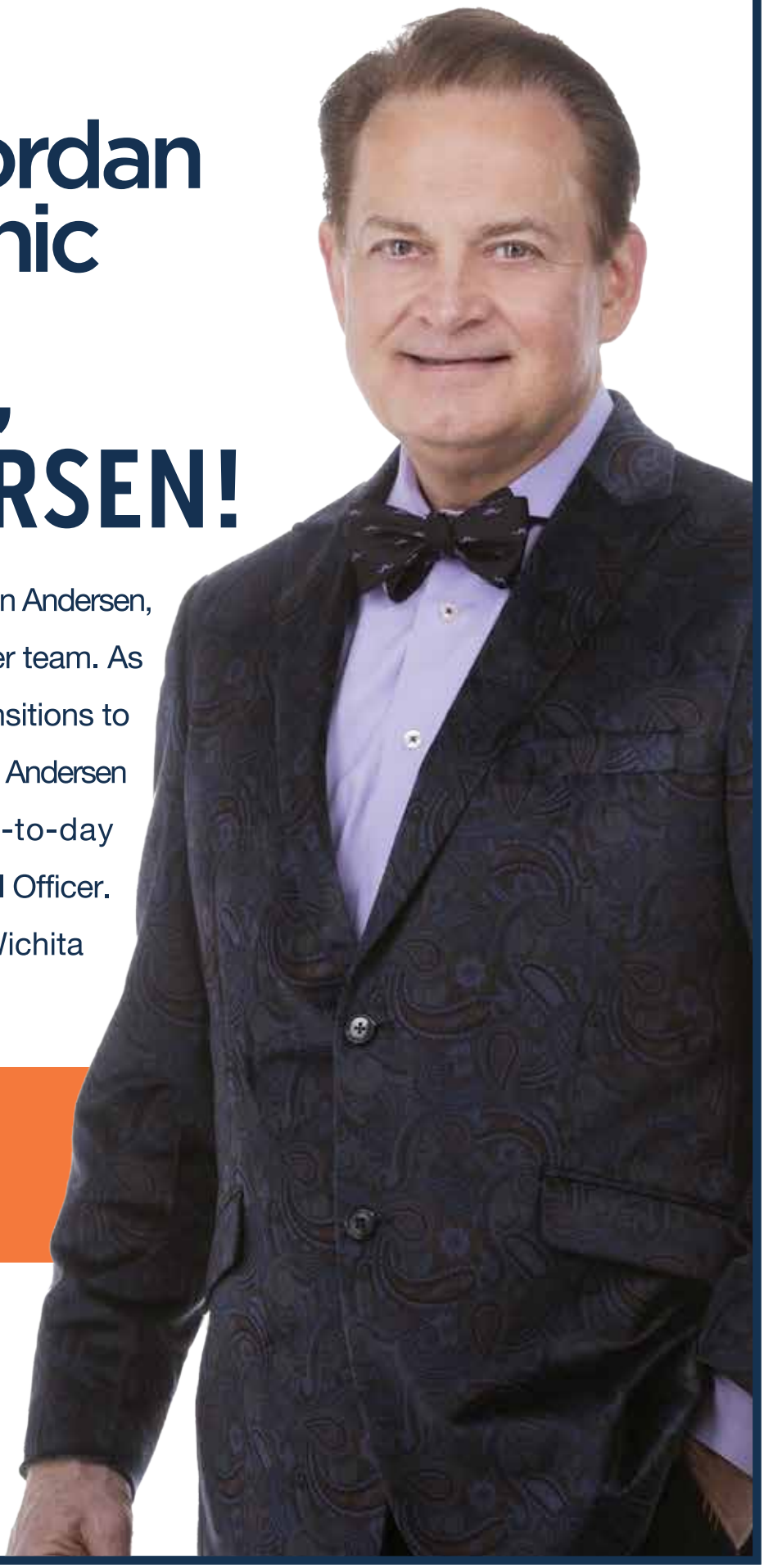
WELCOME, DR. ANDERSEN!

Riordan Clinic welcomes Dr. Arden Andersen, PhD, DO, MSPH, to our provider team. As Dr. Ron Hunninghake, MD, transitions to Chief Medical Officer Emeritus, Dr. Andersen will begin assuming the day-to-day responsibilities of Chief Medical Officer. Both will see patients at our Wichita and Overland Park locations.



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Blueberry Balsamic Chicken

INGREDIENTS

2 Tbsp unsalted butter
2 Tbsp olive oil
4 boneless, skinless chicken breasts
1 tsp salt, divided
1/4 tsp freshly ground pepper, divided
2 shallots, thinly sliced
2 cups blueberries, fresh or frozen
1/2 cup balsamic vinegar
1/4 cup honey
1 Tbsp coarsely chopped rosemary

Total time: 60 minutes
Servings: 4

DIRECTIONS

1. Preheat oven to 350 F.
2. If you are using frozen blueberries, thaw them and reserve both the berries and the juice.
3. Season the chicken with 1/4 tsp salt and 1/8 tsp black pepper.
4. In a large skillet, set over medium heat, melt the butter into the oil. Brown the chicken breasts for 3 minutes on each side until golden brown. Transfer the browned chicken to an oven-proof baking dish.
5. Add the shallots to the pan and cook, stirring constantly, for 2 minutes. Add the blueberries and any blueberry juice, balsamic vinegar, honey, rosemary, and the remaining salt and pepper to the pan. Bring the mixture to a rapid boil. Reduce the heat and simmer, uncovered for 5 minutes.
6. Pour the blueberry balsamic over the browned chicken, place a lid on the baking dish, and cook in the preheated oven for 30 to 40 minutes, or until the chicken is thoroughly done.
7. Allow the chicken to rest at room temperature for 10 minutes and serve hot.

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Thank you for reading.

Melody Spurney
Editor

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EPISODE 56

ANTI-CANCER FOOD CHOICES

Dr. Kirsten West, ND, LAc, FABNO

In this episode of the Real Health Podcast, Chief Medical Officer Dr. Ron Hunninghake, MD, and Dr. Kirsten West, ND, LAc, FABNO, discuss how nutrition and food choices can play a role in preventing cancer or help in healing following a diagnosis.

EPISODE 55

INTENTIONAL CHOICES CAN HELP DECREASE CANCER RISK

Dr. Lucas Tims, ND, FABNO

In this episode of the Real Health Podcast, Chief Medical Officer Dr. Ron Hunninghake, MD, and Overland Park Medical Director Dr. Lucas Tims, ND, FABNO, discuss lifestyle choices people can make to help prevent a cancer diagnosis.

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