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Time-Restricted Eating — A Powerful Way to Prevent Dementia

Analysis by Dr. Joseph Mercola ✓ Fact Checked

November 25, 2022

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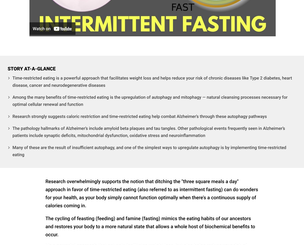

STORY AT-A-GLANCE

- Time-restricted eating is a powerful approach that facilitates weight loss and helps reduce your risk of chronic diseases like Type 2 diabetes, heart disease, cancer and neurodegenerative diseases
- Among the many benefits of time-restricted eating is the upregulation of autophagy and mitophagy — natural cleansing processes necessary for optimal cellular renewal and function
- Research strongly suggests calorie restriction and time-restricted eating help combat Alzheimer's through these autophagy pathways
- The pathology hallmarks of Alzheimer's include amyloid beta plaques and tau tangles. Other pathological events frequently seen in Alzheimer's patients include synaptic deficits, mitochondrial dysfunction, oxidative stress and neuroinflammation
- Many of these are the result of insufficient autophagy, and one of the simplest ways to upregulate autophagy is by implementing time-restricted eating

Research overwhelmingly supports the notion that ditching the "three square meals a day" approach in favor of time-restricted eating (also referred to as intermittent fasting) can do wonders for your health, as your body simply cannot function optimally when there's a continuous supply of calories coming in.

The cycling of feasting (feeding) and famine (fasting) minimizes the eating habits of our ancestors and restores your body to a more natural state that allows a whole host of biochemical benefits to occur.

It's a powerful approach that not only facilitates weight loss, but also helps reduce your risk of chronic diseases like Type 2 diabetes, heart disease, cancer and Alzheimer's.

While there are many variations, time-restricted eating typically involves not eating for at least 14 consecutive hours a day. However, not eating for 16 to 20 hours is likely closer to a metabolic ideal. This means you eat all of your meals for the day within a four- to eight-hour window.

Among the many benefits of time-restricted eating is the upregulation of autophagy and mitophagy — natural cleansing processes necessary for optimal cellular renewal and function. In a January 2020 review paper,[1] researchers explain how calorie restriction helps combat Alzheimer's specifically, through these autophagy pathways.

Preventing Alzheimer's Through Time-Restricted Eating

As explained in "The Effects of Calorie Restriction and Its Mimetics in Alzheimer's Disease Through Autophagy Pathways,"[2] two of the pathology hallmarks of Alzheimer's are amyloid beta plaques and neurofibrillary tangles formed by aggregates of tau protein.

"The aberrant accumulation of these misfolded and aggregated proteins results in neurotoxicity, and AD is therefore recognized as a proteinopathy," the paper states. Other pathological events frequently seen in the brains of Alzheimer's patients include:[3]

- Synaptic deficits and axonal degeneration
- Mitochondrial dysfunction
- Abnormal metal homeostasis
- Oxidative stress
- Neuroinflammation

Many of these occur as a result of "insufficient elimination of neurotoxic proteins or damaged intracellular organelles," the paper notes. In other words, they occur when there's insufficient autophagy occurring in your body. The good news is you can upregulate autophagy, and one of the simplest ways is by implementing time-restricted eating. As explained in this review:[4]

> *"Autophagy is a catabolic mechanism that ensures the removal of misfolded or aggregated proteins and maintains the turnover of cytoplasmic components.*
>
> *Under conditions of starvation or energy deficiency, phagophores are synthesized de novo in the cytoplasm from newly synthesized lipids or from intracellular organelles with membrane structures, such as the endoplasmic reticulum.*
>
> *Phagophores elongate and curve to form double-membrane autophagosomes, which then encapsulate cytosolic materials, misfolded proteins, or long-lived proteins.*
>
> *After fusion with lysosomes, any cargo is degraded by lysosomal enzymes. The autophagic process provides a strategy for clearing misfolded or aggregated proteins in proteinopathic disorders. Failure of autophagy leads to the accumulation of aggregates, which results in neurotoxicity and disease progression."*

Autophagy Dysfunction in Neurodegenerative Disorders

Autophagy dysfunction has been identified in several neurodegenerative and neuropsychiatric disorders and diseases, including Alzheimer's, Parkinson's, amyotrophic lateral sclerosis (ALS), Huntington's disease, ischemic stroke, schizophrenia and even drug addiction.[5]

Hence, it is believed that autophagy activation has an important role to play in the prevention and treatment of these conditions. Importantly though, using autophagy stimulators such as drugs, gene therapy or supplements can have undesirable side effects in some people, and may not be ideal.

Time-restricted eating, or calorie restriction, the authors note, is a safer and likely more effective strategy for most. So, just how does calorie restriction or intermittent fasting induce autophagy?

There are several mechanisms at play, but two important ones are activation of monophosphate-activated protein kinase (AMPK) and inhibition of the mammalian target of rapamycin (mTOR) pathway.[6] Calorie restriction also helps ameliorate Alzheimer's and other degenerative conditions by lowering inflammation and improving insulin sensitivity, mitochondrial function and oxidative stress.

The Benefits of AMPK Activation

AMPK is an enzyme essential for maintaining energy balance. It consists of three proteins (called sub-units) that together create a functional enzyme. AMPK is expressed in various tissues, including the brain, liver, skeletal muscle and fat cells, and is essential for controlling autophagy.

It's sometimes referred to as a "metabolic master switch" because it plays an important role in regulating metabolism.[7] It shifts energy toward cellular repair and maintenance, thus helping your body return to homeostasis (balance).

Low AMPK has been linked to insulin resistance, mitochondrial dysfunction, obesity, neurodegeneration and chronic inflammation. Activating AMPK produces many of the same benefits as exercise, dieting and weight loss,[8] all of which are known to benefit a range of chronic diseases and ill health.

AMPK is also an important neuroprotector,[9] thus making it particularly relevant in Alzheimer's prevention and treatment. In addition, AMPK stimulates cellular and mitochondrial autophagy (mitophagy) and mitochondrial biogenesis, as well as five other critically important pathways:

- Insulin
- Leptin
- mTOR
- Insulin-like growth factor 1 (IGF-1)
- Proliferator-activated receptor gamma co-activator 1-alpha (PGC-1α)

Benefits of mTOR Inhibition

MTOR is also an important pathway responsible for controlling autophagy. When you inhibit mTOR — which you can do through time-restricted eating — you activate autophagy. MTOR is basically a nutrient sensor. While insulin primarily senses your intake of carbohydrates, mTOR primarily senses protein.

That said, other nutrients can also activate or inhibit mTOR. Nutrients that activate mTOR include branched-chain amino acids, glutamine, methyl folate and vitamin B12.

Nutrients that inhibit mTOR include polyphenols like curcumin, fisetin, quercetin, resveratrol (found in wine) and epigallocatechin gallate (EGCG, found in green tea). Organic coffee and dark chocolate also contain high amounts of mTOR inhibiting polyphenols.

Why Cycling in and Out of Autophagy Is so Important

One of the reasons time-restricted eating works so well is because you're cycling through autophagy on a daily basis (opposed to only occasionally, were you to do longer fasts once a month or quarterly, for example). This cycling is really crucial. You don't want to inhibit mTOR and activate autophagy all the time. There needs to be a balance between breaking down and building back up.

If your glycogen levels get too low by fasting too long it will stimulate inflammation by causing your body to secrete more cortisol to compensate for the metabolic stress. Then your body will shift to breaking down fat which sounds great, but most of your stored fat is the polyunsaturated fat, linoleic acid (LA), and not saturated fat. When you start burning this fat you create even more inflammation and also oxidative breakdown products of LA (OxLAMs).

When you eat, your insulin goes up, mTOR is activated and autophagy is inhibited, thus allowing for cellular rebuilding and growth. Then, when you fast, insulin goes down, mTOR is inhibited and autophagy activated, thus allowing for the breakdown and elimination of dysfunctional cellular components. The next time you eat, the cycle of rebuilding begins anew, and so on.

When you're continuously eating, autophagy will be severely inhibited. As a result, damage continues to build up as damaged cells cannot be efficiently eliminated and regenerated. Many hormonal shifts also occur during fasting, including growth hormone.

Opinions about how long one should fast each day varies. As a general rule, the recommended range is between 12 and 18 hours of fasting each day. I'm of the opinion that 16 to 18 hours of fasting might be the sweet spot, as this allows your body to deplete the glycogen stores in your liver more and suppress mTOR and activate autophagy better.

Time-Restricted Feeding Improves Brain Function

As noted in "The Effects of Calorie Restriction and Its Mimetics in Alzheimer's Disease Through Autophagy Pathways," a number of animal studies have demonstrated that time-restricted eating helps prevent memory loss and improve cognition. The authors state, in part:[10]

> *"[Intermittent fasting] has been reported to optimize brain function and increase neuronal resistance to injury and disease. ... Behavioral improvements in AD mice that undergo IF might occur because of the effects of IF on balancing hippocampal excitability. In addition, IF prevents memory loss in oxaliacetoxime treated mice and amyloid beta in hippocampal regions ... short-term fasting (24 or 48 hours) was capable of enhancing neuronal autophagy in 5xFAD mice, which is a severe AD model..."*

The Case for Eating Less, Period

Both animal and human studies also suggest people with a low calorie intake overall have a reduced risk for Alzheimer's compared to those eating a high-calorie diet.[11] In one animal study, animals whose diet was 30% lower in calories than normal restored memory performance after 10 months. High-calorie diets were also shown to result in autophagic failure in the hippocampus.[12]

Animal studies have further demonstrated that low-calorie diets reduce the amount of amyloid beta and tau in the brain, while high-calorie diets increase them.[13]

The beautiful characteristic of time-restricted eating is that it appears to replicate most of the metabolic benefits of calorie restriction without actually restricting calories. Additionally, because it is such a restricted eating window and a person's appetite is reduced, they typically wind up eating fewer calories anyway without any feeling of deprivation.

Slim Lund does a great job on expanding on the differences between these two as they relate to longevity in the video at the top of the article. Even though the comparison is to longevity, the same pathways are also active in Alzheimer's, such as sirtuins, AMPK and NAD+.

Calorie Restriction Mimetics

"The Effects of Calorie Restriction and Its Mimetics in Alzheimer's Disease Through Autophagy Pathways" also addresses the use of calorie restriction mimetics, compounds that mimic the effects of calorie restriction. The most thoroughly studied and well-recognized mimetic is resveratrol, a polyphenol found in grape skins and certain berries, including blueberries and cranberries. According to the authors:[14]

> *"Several studies have revealed the potential efficacy of resveratrol supplementation for the prevention and treatment of AD. For example, treatment with resveratrol prevents neurotoxicity in cultured cells exposed to amyloid beta.*
>
> *In addition, in a rodent model of AD, resveratrol alleviated memory deficits, maintained the integrity of the blood-brain barrier, ameliorated the plaque burden, in habitled tau pathology, and suppressed microglial activation ...*
>
> *The anti-amyloidogenic and neuroprotective effects of resveratrol in AD appear to be strongly associated with enhanced autophagic activity. Resveratrol activates SIRT1-dependent autophagy, which contributes to an attenuation of the neurotoxicity caused by amyloid beta. Moreover, resveratrol represses mTOR signaling and induces autophagy by activating the AMPK signaling pathway."*

Other Alzheimer's Prevention Guidelines

Aside from time-restricted eating, there are many other strategies that will help prevent (and in some cases, treat) Alzheimer's. Here's a rundown of what I believe are some of the most important:

Avoid trans fat and industrially processed vegetable oils — While diets high in healthy fats and antioxidants can go a long way toward warding off dementia, diets high in trans fats and processed omega-6 oils will promote it.

Research[15] published in the October 2019 issue of Neurology found a strong link between trans fat consumption and incidence of dementia and its various subtypes, including Alzheimer's. The worst dietary culprits were pastries, margarine, candy, caramels, nondairy creamers, ice cream and rice crackers.[16] Similarly, the oxidized omega-6 fat found in processed vegetable oils can cause significant harm to your brain when consumed in excess.

Avoid sugar and refined fructose — Ideally, you'll want to keep your sugar levels to a minimum and your total fructose below 25 grams per day, or as low as 15 grams per day if you have insulin resistance or any related disorders.

Increase consumption of healthy fats, including marine-based omega-3 — Beneficial health-promoting fats that your brain needs for optimal function include coconut oil, organic butter from raw milk, ghee, grass fed raw butter, olives, organic virgin olive oil, nuts like pecans and macadamia, free-range eggs, wild Alaskan salmon and avocado.

Also make sure you're getting enough animal-based omega-3 fats from small fatty fish such as anchovies and sardines, or take a phospholipid-based supplement such as krill oil. High intake of the omega-3 fats EPA and DHA help prevent cell damage caused by Alzheimer's disease, thereby slowing down its progression, and lowering your risk of developing the disorder.

Avoid gluten and casein (primarily wheat and pasteurized dairy, but not raw dairy, such as butter) — Research shows your blood-brain barrier is negatively affected by gluten.[17] Gluten also makes your gut more permeable, which allows proteins to get into your bloodstream, where they don't belong. That then sensitizes your immune system and promotes inflammation and autoimmunity, both of which play a role in the development of Alzheimer's.

Optimize your gut flora by regularly eating fermented foods or taking a high potency and high quality probiotic supplement.

Improve your magnesium level — Magnesium threonate appears promising for supporting cognition and may be superior to other forms.

Optimize your vitamin D levels with safe sun exposure — Researchers believe optimal vitamin D levels may enhance the amount of important chemicals in your brain and protect brain cells by increasing the effectiveness of the glial cells in nursing damaged neurons back to health.

Vitamin D may also exert some of its beneficial effects on Alzheimer's through its anti-inflammatory and immune-boosting properties. Sufficient vitamin D is imperative for proper functioning of your immune system to combat inflammation that is also associated with Alzheimer's.

Avoid and eliminate mercury from your body — Dental amalgam fillings, which are 50% mercury by weight, are one of the major sources of heavy metal toxicity. However, you should be healthy before having them removed. Once you have adjusted to following the diet described in my optimized nutrition plan, you can follow the mercury detox protocol and then find a biological dentist to have your amalgams removed.

Also avoid flu vaccinations as most contain mercury, aka thimerosal, a well-known neurotoxic and immunotoxic agent.

Avoid and eliminate aluminum from your body — Sources of aluminum include antiperspirants, nonstick cookware and vaccine adjuvants.

Exercise regularly — It's been suggested that exercise can trigger a change in the way the amyloid precursor protein is metabolized,[18] thus slowing down the onset and progression of Alzheimer's. Exercise also increases levels of the protein PGC-1alpha. Research has shown that people with Alzheimer's have less PGC-1alpha in their brains and cells that contain more of the protein produce less of the toxic amyloid protein associated with Alzheimer's.

Avoid anticholinergics and statin drugs — Drugs that block acetylcholine, a nervous system neurotransmitter, have been shown to increase your risk of dementia. These drugs include certain nighttime pain relievers, antihistamines, sleep aids, certain antidepressants, medications to control incontinence, and certain narcotic pain relievers.

Statin drugs are also problematic as they suppress the synthesis of cholesterol, deplete your brain of coenzyme Q10 and neurotransmitter precursors, and prevent adequate delivery of essential fatty acids and fat-soluble antioxidants to your brain by inhibiting the production of the indispensable carrier biomolecule known as low-density lipoprotein.

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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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DO NOT EAT IF YOU ARE NOT HUNGRY, AND AFTER EATING, IT IS BETTER THAT YOU FEEL A LITTLE HUNGRY. It is advisable to identify hunger using internal wisdom, and apply external wisdom when necessary. Lack of appetite may be more common in older adults. Over 30% of older people have less appetite than before, for various reasons: slower digestion, loss of smell and taste, hormonal changes, or chronic diseases. I only make two meals a day: at 11:11 in the morning and 4:5 in the afternoon. I wake up at 7 in the morning and I go sleep around 11 at night. I sleep 8 hours with good quality sleep.

I am therefore 17 hrs without eating food. Before breakfast at 10, I do high intensity exercise on the elliptical bike. When I am at home I exercise on the bicycle stand for 5 minutes. My breakfast are green vegetable smoothies and some fruit (pomegranate for the arteries), with essential amino acids in whey protein, with avocado, 4 grams high in boron for the bones, coconut oil, ginger, turmeric, etc., all ecological and of the time. I also take boron from macadamia nuts (rich in omega 9) and from Brazil (3 nuts, they have the daily dose of selenium). Fasting 7 day every 15 days

Reply · Mark as Spam · Posted On: 3/13/2020 1:11:00 AM
Like · Dislike

justclove
Joined On 1/5/2012 11:13:56 AM
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Hey Gui, while growing up most of the men on one side of the family pretty much did time restricted eating. One or two cups of black coffee in the morning and then off to work or chores. They claimed it the same holds for me, eating starting in the morning & through the day makes it hard to work, usually hard physical labor work. Farming, construction, logging, mines. They all looked like North or South of late twenty's or early thirties up and into their fifties, and looked North or South of Fifty up and into their Seventies. Their biggest problem was alcohol and alcoholism. One has to wonder if they had avoided the hooch and the modern medicine concoctions, how long they would have lived and what they would have been able to be. Georgian, while no one latter it puzzles me why boosters take it as a personal affront not drown in hooch with them? Misery loves company?

Reply · Mark as Spam · Posted On: 3/13/2020 4:57:37 AM

Darzoum
Joined On 12/15/2010 1:27:52 PM
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Hi Guillermo— internal and external wisdom... I like that. People throughout time have traditionally known how to read signals from their bodies and make adjustments (and therefore know what to do and what not to do). Our modern knowledge of physiology and body chemistry mostly confirms what the body signals have been telling us all along. It may be more necessary because modern life tends to cause disconnection and overwhelm which is supposed to be our natural monitoring system. We need to learn how to hook up an amplifier to those signals... i.e. pay close attention to reading the body (as it sounds like you are doing).

Reply · Mark as Spam · Posted On: 3/13/2020 10:55:19 AM

Guillermoo
Joined On 6/17/2015 6:47:48 AM
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JUST and DARZOUM, your comments have to think that as you are thoughtful, the good idea of listening to your own body, sometimes it is made a bit impossible by the needs of work, and the stress of modern life. Work can force a calorie restriction in the JUST experience, but also stress can force to drugs, such as alcohol and tobacco, and overeating and other unhealthy food. To avoid these deviations from healthy lifestyles as DARZOUM says, we need to correct an amplifier of our inner and outer wisdom.

The current rhythm of life, with a great work, family and social burden, causes stress, altering our intestinal function, seriously affecting our health. People with higher levels of stress are more likely to accumulate fat and become obese. Our brain releases cortisol and metabolizes appetite related hormones like leptin. Joint research between Amsterdam and Brazil researchers has shown that neuropeptide Y (NPY), a molecule that is released during stress, can act on the P2 receptors of adipocytes, stimulating them to grow in both size and number. www.ncbi.nlm.nih.gov/...PMC4099511/ (2016)

Reply · Mark as Spam · Posted On: 3/13/2020 1:35:05 PM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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"COVID takes protein, amplifies toxic them and deems them to proteases that will break them down", explained Vianita. "Keeping your protein supplement happy and functional requires CICAS. If it doesn't work, you have all kinds of problems, including damaged neurons. "As they say, a bad apple seems to spoil the whole barrel," said Vianita. "But in various neurological disorders, you only need a faulty CICAS to go wrong and have bad consequences, if you can't clean up its mess." www.genengnews.com/news/autophagy-proteins-flip-side-cimdna-the-recycl... (2019)

Reply · Mark as Spam · Posted On: 3/13/2020 1:35:05 PM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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The University of Washington team, led by Richard S. Marshall, a research scientist, and Richard Vierstra, a professor of biology, reported UBA binding proteins to ATG8 as a new class of autophagy adaptors. Autophagy sometimes fails, allowing defective cellular material to accumulate and contribute to disorders such as Huntington's disease, Alzheimer's, Parkinson's disease, and other pathologies. www.sciencedirect.com/.../S0092867419301188 (2019) Proteotoxic stress occurs when faulty proteins accumulate and cells cannot get rid of them. Defective proteins and CICAR tend to begin to form tangled aggregates such as those recognized in Alzheimer's and Parkinson's disease.

Reply · Mark as Spam · Posted On: 3/13/2020 1:35:05 PM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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A new study by scientists in the US UU. And China provides the most detailed report to date of the cellular effects of a calorie-restricted diet in rats. "We already knew that calorie restriction increases shelf life, but now we have demonstrated all the changes that occur at the single cell level to cause that," says Juan Carlos Izpisua Belmonte, lead author of the new article.

Belmonte's team isolated and analyzed a total of 149,733 cells from 40 cell types in the 16 rats. The cells came from fatty tissues, liver, kidney, aorta, albin, bone marrow, brain and muscle. In each isolated cell, the researchers used single-cell genetic sequencing technology to measure activity levels of the genes. Many of the changes that occurred when rats in the normal diet aged did not occur in rats on a calorie restriction diet, and vice versa. Different tissues and cells in the diet closely resembled those of young rats. phys.org/news/2020-02-scientists-calorie-restriction-negative-effects... (FEBRUARY 27, 2020) www.researchgate.net/publication/339540637_Calorie_Restriction_Reprogr... (FEBRUARY 27, 2020)

Reply · Mark as Spam · Posted On: 3/13/2020 2:55:16 PM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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Belmonte's team isolated and analyzed a total of 149,733 cells from 40 cell types in the 16 rats. The cells came from fatty tissues, liver, kidney, aorta, albin, bone marrow, brain and muscle. In each isolated cell, the researchers used single-cell genetic sequencing technology to measure activity levels of the genes. Many of the changes that occurred when rats in the normal diet aged did not occur in rats on a calorie restriction diet, and vice versa. Different tissues and cells in the diet closely resembled those of young rats. phys.org/news/2020-02-scientists-calorie-restriction-negative-effects... (FEBRUARY 27, 2020)

Reply · Mark as Spam · Posted On: 3/13/2020 2:55:16 PM
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1MS384
Joined On 11/1/2013 6:41:20 PM
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Addendum for some readers... Fasting is good... The term "eating" (for the most part) is related to solids. It's important to maintain properly hydrated during any type of TRE / fasting.

Reply · Mark as Spam · Posted On: 11/05/2020 8:21:54 AM
Like · Dislike

Guillermoo
Joined On 6/17/2015 6:47:48 AM
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CALORIC RESTRICTION, FASTING, AND EXERCISE ARE SOURCES OF YOUTH. Beehive exerts anti-hyperglycemic and antidyslipidemic properties. Studies have revealed the beneficial metabolic effect of beehive was attributed to activation of AMP-activated protein kinase (AMPK). Berberine potentiated fibroblast growth factor 21 (FGF21), a hormone-like protein derived primarily from the liver, exhibits multiple beneficial effects on energy metabolism and the prevention of Alzheimer's. www.sciencedirect.com/science/article/abs/pii/S0006291X17326466 (2018)

Berberine could prevent the development of dementia through multiple mechanisms: preventing brain damage and improving cognition directly in the brain and indirectly by alleviating risk factors such as metabolic dysfunction and cardiovascular, kidney and liver diseases. www.sciencedirect.com/science/article/abs/pii/S0304394020300504 (2020) Berberine has various pharmacological activities, including antimicrobial, glucose and cholesterol lowering, anti-tumor, and immunomodulatory properties. Substantial studies suggest that berberine may be beneficial for Alzheimer's disease by limiting the pathologies of extracellular amyloid plaques and intracellular neurofibrillary tangles. www.ncbi.nlm.nih.gov/...PMC5855157 (2017)

Klotho, a natural human protein has great potential to delay these diseases of aging. The exercise is related to the Klotho gene for longevity. Klotho regulates nitric oxide. Circulating S klotho depends on the level of aerobic fitness, and is higher in trained individuals. Relationships between circulating levels of a Klotho are a possible anti-aging factor, and aerobic exercise is beneficial for physically active older people. www.ingentaconnect.com/content/wolters/ijsm/2019/00000011/00000002/art00... (2018) Klotho and autophagy intricately interact to protect health. Tools.onlinelibrary.wiley.com/.../fj.201903127R (2020)

Reply · Mark as Spam · Posted On: 3/13/2020 4:04:01 AM
Like · Dislike

Guillermoo
Joined On 6/17/2015 6:47:48 AM
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Fibroblast growth factor 21 (FGF21), a member acts through FGF receptor 1 with the β-Klotho co-receptor, functions as an important metabolic regulator of peripheral glucose tolerance and lipid homeostasis in an endocrine system or autocrine and / or paracrine. Previous studies showed that FGF21 improved and prevented the development of metabolic disorders, such as obesity and diabetes mellitus. Its protective effects were demonstrated that berberine, a natural compound, stimulates the expression of FGF21 in brown adipose tissue. Furthermore, expression upregulated by FGF21 in brown adipocytes in response to berberine was due, at least in part, to activation of the AMPK pathway. www.sciencedirect.com/science/article/abs/pii/S0006291X19301522 (2019)

AMPK stimulates cellular and mitochondrial autophagy (mitophagy) and mitochondrial biogenesis. AMPK has a fundamental role in regulating the energy load of the cell, having an essential factor in energy homeostasis. AMPK can also be regulated by physiological stimuli. AMPK, is activated through the cellular stress pathway in our body by physical exercise, lack of glucose, reduced blood flow, lack of oxygen, oxidative stress. HIT training is best for activating AMPK. There seems to be a strong correlation between training intensity and AMPK activation. www.ncbi.nlm.nih.gov/...PMC4982224 (2018)

AMPK activity has been shown to decrease with age, which may contribute to decreased mitochondrial biogenesis and function with aging. The AMPK and MTOR pathways must be regulated in a perfect balance, and with good metabolic conditions. For this we have exercise and calorie restriction and fasting. All this favors autophagy, which eliminates damaged cells and favors cell regeneration. Autophagy has a very positive effect on longevity.

Reply · Mark as Spam · Posted On: 3/13/2020 8:04:39 AM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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Vitamin D also regulates autophagy acting on a different against cancer, inflammation and metabolic disorders. ...nfm.sciencemag.org/...mam0326 (2017) www.mdpi.com/2072-6694/12/2/304/pdf (2020) www.ncbi.nlm.nih.gov/...PMC5855157 (2017) Activation of AMPK mimics the benefits of exercise by improving mitochondrial function AMPK, inhibits the production of ceramides, free fatty acids and cholesterol. Utilizing glucose and fatty acids as energy fuel gain by improving insulin sensitivity promoted by resveratrol. A

AMPK inhibits aging. AMPK stimulates many other beneficial antioxidant pathways such as the Foxo, Nrf2, and SIRT1 genes, which improve stress resistance and are related to longevity. AMPK inhibits NF-kb signaling, which suppresses inflammatory processes www.ncbi.nlm.nih.gov/...PMC4973318 (2016) diabetes.diabetesjournals.org/.../351/5/ (2018) www.ncbi.nlm.nih.gov/...PMC4267273 (2015) www.ncbi.nlm.nih.gov/...PMC4267273 (2015) (2018) AMPK increases blood flow through vasodilation by stimulating the release of nitric oxide in the blood vessels, supporting the prevention of Alzheimer's and cardiovascular diseases. www.ncbi.nlm.nih.gov/...c/2869500 (2015)

AMPK increases the production of sex hormones in many species [vii]. It can increase male hormones and estrogens in human cells [ix]. Reducing AMPK reduces fertility www.fluxtherapy.org/...rful/ (2015) journals.plos.org/plosone/article?id=10.1371/journal.pone.0020956 (2012) AMPK protects against oxidative stress by increasing thioredoxin metabolic stress and could be a therapeutic target in the treatment of cardiovascular disease in metabolic syndrome and prevention of Alzheimer's diabetes.diabetesjournals.org/.../2341 (2009)

Reply · Mark as Spam · Posted On: 3/13/2020 4:05:31 AM
Like · Dislike

Guillermoo
Joined On 6/17/2015 6:47:48 AM
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The release of adiponectin from fat cells signals a lack of energy and stimulates AMPK. Ghrelin, the hunger hormone, stimulates AMPK in the hypothalamus of the brain. Thyroid hormone T3 increases metabolic rate and activates AMPK in muscles. Nitric oxide stimulates AMPK by promoting blood flow and regulating mitochondrial biogenesis. Ketone promotes AMPK activation through the production of ketone bodies. Exposure to cold increases AMPK. A Lipoic Acid (ALA) activates AMPK in muscles and other tissues. link.springer.com/.../10.1007%2F978-1-61779-902-7_7 (2012) www.ncbi.nlm.nih.gov/...17816763 (2008) physoc.onlinelibrary.wiley.com/doi/pdf/10.1113/physjnl.2010.194935 (2012) www.ncbi.nlm.nih.gov/...22329791 (2012)

"This study shows that aging is a reversible process," explains researcher Juan Carlos Izpisua, a molecular biologist who works at the Salk Institute (USA). "We have shown that certain metabolic changes that lead to an acceleration of aging can be reprogrammed in a relatively simple way, reducing our caloric intake, in order not only to extend our lives, but, much more importantly, to make our old age more healthy." During aging there is a very pronounced dysregulation of the immune system that gives rise to a state of chronic systemic deterioration and the appearance of diseases associated with age. www.cell.com/.../S0092-8674 (2020)02-5 "_mtorsiRE=AttpA3ASJPc2PTdAmkgnuA.vtsaner.com%2Fmetrowm%2Fph%2F200928%2F8702030132%2FshowroR%2Dtoue

Reply · Mark as Spam · Posted On: 3/13/2020 4:05:58 AM
Like · Dislike

LazaroLong
Joined On 1/16/2008 11:45:30 AM
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A reference lyco included above, from Cell.com, with a quote from Juan Carlos Izpisua tel to a "page not found" at Cell Press. Could you repost that link? Thank you for the reference.

Reply · Mark as Spam · Posted On: 3/13/2020 10:45:02 AM
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Guillermoo
Joined On 6/17/2015 6:47:48 AM
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Thank you very much, LAZAROLONG. CALORIC RESTRICTION REPROGRAMS THE SINGLE-CELL TRANSCRIPTIONAL LANDSCAPE OF BATTLE NORWEGICUS AGING. www.researchgate.net/profile/Guang-Hui_Liu/publication/339540637_Calor... Cell_Transcriptional_Landscape_of_Rattus_Norwegicus_Aging/links/5e0c5e9d4585152e0f5295fc/Calorie-Restriction-Reprogr... ow the Single-Cell Transcriptional Landscape of Rattus Norwegicus Aging.pdf (2020) phys.org/news/2020-02-scientists-calorie-restriction-negative-effects... (FEBRUARY 27, 2020)

Reply · Mark as Spam · Posted On: 3/13/2020 10:56:25 AM
Like · Dislike

Georgian
Joined On 1/28/2007 7:42:52 AM
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Since a few months, I eat only one meal a day, since I eat foods with a very low glycemic index for years, that is to say, mainly vegetables and protein, no problem at all with being hungry. The main (little) problem is socially so not up to 7 / 8 little only water, no alcohol at all, no more people that take me for an original. Been for some people has become sacred LCS, so telling them no thank you is a form of aggression towards them :-)

Reply · Mark as Spam · Posted On: 3/13/2020 1:36:48 AM
Like · Dislike

balhawk
Joined On 12/11/2009 3:56:56 PM
Add as Friend · Send Message

Ketosis (burning fat for energy when sides were glucose (sugar) stores are depleted) and autophagy (consuming damaged cells for fuel) are indeed very important to regenerate and prevent chronic conditions such as dementia and cancer. But HOW to best enable these processes is by no means a "one size fits all" matter. While restricted eating and calorie restriction may be ideal for many if not most people, there is simply no much muscle without enough building materials. As a natural "hard gainer" for whom it has always been a challenge to build and maintain muscle, I've found intermittent longer periods of fasting to work best for my objectives, typically preceding intense exercise, after which I eat a very, very high calorie diet during the refeeding phase, following my own body's cues as to when to fast again, typically a few days later.

I have read elsewhere, but do not have the reference handy, that autophagy itself tends to be close to a maximum at about 24 hours or slightly longer for most people, after which the returns diminish. I don't know how matters such as age affect that. Perhaps the fasting time would be shorter for older individuals, whose bodies tend to be more catabolic, all in all. I've always observed the health matters ultimately come down to what makes sense, and then fits into a lifestyle. The more I've tailored my regimen to my own body's cues and needs, the better the results have been.

Reply · Mark as Spam · Posted On: 3/13/2020 1:43:41 AM
Like · Dislike

Guillermoo
Joined On 6/17/2015 6:47:48 AM
Add as Friend · Send Message

Interesting reflections, BALHAWK. The AMPK and MTOR pathways must be regulated in a perfect balance, and with good metabolic conditions. For this we have exercise and calorie restriction and fasting. All this favors autophagy, which eliminates damaged cells and favors cell regeneration. Calorie restriction can be performed without decreasing protein intake when you want to increase the musculature. Autophagy has a very positive effect on longevity. The MTOR route works as a complex network of nutrients, energy or biosynthetic activity in the body, and controls the synthesis protein and cellular hypertrophy.

The activity of the MTOR pathway is mainly regulated by insulin, by insulin-derived growth factors IGF1 and certain amino acids (especially leucine, providing BCAA). It is important that the rest periods together with the feeding of amino acids from proteins, to promote muscle growth. www.ncbi.nlm.nih.gov/...11719833 In an interview with the Cut, neighrologist (kidney doctor) and fasting researcher Jason Fung suggested that autophagy, in which "your body will take the oldest, junkiest proteins and burn them for energy," begins to kick in after the stages of a long fast "somewhere around 20 to 24 hours, to my guess, and it probably means out somewhere around 32 hours, again is my best guess." www.ncbi.nlm.nih.gov/...PMC4982224 (2018)

Mark as Spam | Posted On : 3/12/2020 1:03:32 PM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
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The deregulation of the AMPK/ATP balance in aging is the origin of neurodegenerative diseases. Mutations in mitochondrial DNA and oxidative stress are agents that cause aging and neurodegeneration. Aging is associated with decreased protoneuns, reduced nutrient detection, impaired mitochondrial dysfunction, cellular senescence, and stem cell depletion. The main cellular mechanism that maintains protoneutrals and mitochondrial dysfunction is autophagy. For this, it has been suggested that autophagy deregulation and the MT/DR pathway. It could be the basis, at least in part, of aging.
www.ncbi.nlm.nih.gov/...PMC3961261 - (2016)

Mark as Spam | Posted On : 3/12/2020 1:03:35 PM

Like | Dislike

kalhawk
Joined On 12/1/2009 3:56:09 PM
Add as Friend | Send Message

Appreciate the references, Gal. I did recall coming info regarding benefits of longer fasts, but didn't have any such references at my fingertips. Most of what I've read, to just it simply, suggests that autophagy can go on to some degree or other most of the time, but becomes more significant in the hour point, and predominating later, as Fung thinks. It also stands to reason that the transition to autophagy depends upon the individual: one's base metabolism, body fat stores, activity levels, etc., and it also stands to reason the body gets better at it in general with more practice, so to speak. At this point I'm finding 24 hour fasting to be easy, even while being active. That in itself seems to be a good indicator that my body is doing a good job of making the transitions to ketosis and later autophagy.

Mark as Spam | Posted On : 3/12/2020 1:52:17 PM

Like | Dislike

Knofler
Joined On 6/3/2015 9:47:39 AM
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I had the good fortune to meet one of the early proponents of caloric restriction in 1991 at the closing ceremony of Biosphere 2 (near Tucson), just before he and 7 others were sealed up inside the worlds first artificial, self sustaining ecosystem for two years. Early caloric restriction (CR) studies from the 1930's were viewed by Dr. Roy Walford in the1960's - although I knew of his work on CR - because he was constantly being attacked by the medical establishment and the medical status quo as being a quack - I decided to not delve any further into what he was doing. Wish I had had more of an open mind back then because now he is considered a pioneer in the field of CR.
en.wikipedia.org/.../Biosphere_2 https://roy-walford.com/

Reply | Mark as Spam | Posted On : 3/12/2020 10:07:15 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
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Thanks KNOFLER ..., a little history in the early 1970s, laboratories led by Walford at UCLA and Masora at the University of Texas Health Science Center became interested in CR as a method of evaluating the mechanisms underlying aging. Walford had recently published a book discussing his thoughts on the relationship between immune function and biological aging entitled "The Immune Theory of Aging". Previous studies, especially Rose's, suggested that CR delayed or prevented some age-related immune disorders. Walford's group along with Masora's, who was a graduate student at the time, spent the following years validating CR as a model for research on aging and its impact on age-related diseases.

After a time in between, the general recognition is biological aging that took place during the 1990s led to the most important change in the direction of RC research when Gary Weindruch, Rafael de Cabo, Ricki Colman and others began research in the coming years, we owe great thanks to Chris McCay and his RC post that appeared in The Journal of Nutrition 70 years ago. Thank you, Dr. McCay, for the authors and the hundreds of other researchers you have inspired to carry out the RC research.
www.ncbi.nlm.nih.gov/...PMC2854377

Mark as Spam | Posted On : 3/12/2020 11:18:18 AM

Like | Dislike

grulla
Joined On 5/17/2012 8:03:55 AM
Add as Friend | Send Message

So many big unfortunate words makes for the first 90 year old woman to understand what you all are saying. I do the best I can with what I eat but many bad habits over the years have me overweight and adult children who say not to worry about it. However, I would like to lose some pounds as I know the weight in the middle of my body is not good. I would like to have at least 5 more good years before I leave this earth...watching one of my grandmother's age at death. Any suggestions as to how to understand all these big words or could some of you use some smaller words so we oldsters can understand better?

Reply | Mark as Spam | Posted On : 3/13/2020 5:05:52 AM

Like | Dislike

sharonh
Joined On 3/19/2013 7:54:31 PM
Add as Friend | Send Message

Guillermoo I am amazed by your knowledge, although don't quite understand it lol. I follow restricted eating, eat clean, organic, no gluten but cannot budge the unwanted weight. Been to several doctors, who just dismiss it as good measures. Had thyroid checked on numerous accounts. Everything comes back normal. I'm told to loose weight but just cannot. It is very disheartening. I cook all my own food , so I know what goes in it. Do not treat the American food chain one bit. I'm trying to loose the belly fat for my health and joints. Totally at my wits end. Feel like when I go back home to visit (England) they all assume I'm a fast food eating American. Nothing is further from the truth! Just do not know what is wrong with my body! Any insight from anyone would be greatly appreciated. Thank you.

Reply | Mark as Spam | Posted On : 3/13/2020 8:19:27 AM

Like | Dislike

dover
Joined On 5/19/2007 3:49:56 PM
Add as Friend | Send Message

Try eating Keto or carnivore. People have had amazing results with Keto and then even more amazing results from carnivore.

Mark as Spam | Posted On : 3/13/2020 8:56:38 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

HI SHARONTH, The sincerity alone all I try to make a good knowledge management, from what I am fundamentally learning from this great website of Dr. Mercola. Well, I understand that if you eat your food in it, you could be more expert than me in metabolic factors. I suppose you also exercise. It can be hormones or / and a genetic factor. Hormonal imbalances are linked to being overweight and obese. Leptin is a hormone produced by adipose tissue that works by informing the hypothalamus about the size of white fat deposits in the body. A dysregulation by saturation or alteration in its receptors at the level of the brain can lead to increased fat deposits. Fish, broccoli, almonds, spinach, carrots, and green vegetables regulate leptin and boost metabolism.

Menopause is clearly related to the reduction of estrogens that also results in weight gain and the accumulation of fat in the abdominal area, legs and buttocks. The increase in visceral fat facilitates the development of insulin resistance and its clinical consequences such as alterations in carbohydrate metabolism and type 2 diabetes, high blood pressure and dyslipidemia with the consequent increase in cardiovascular risk, and other complications. The consumption of red fruits, broccoli, Brussels sprouts, cauliflower, radish, pineapple, tomato and foods with high fiber content is recommended A diet of low glycemic index foods, few carbohydrates, and increased healthy fats, decreases insulin resistance. High insulin levels promote cortisol secretion, increasing appetite and abdominal fat.

Mark as Spam | Posted On : 3/13/2020 9:20:42 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
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Ghrelin is also known as the hunger hormone, this compound is synthesized in the stomach and whets the appetite. The hormone ghrelin also forces the accumulation of lipids in the visceral fat and that located in the abdominal area. green vegetables, legumes, sesame or chia are very helpful, being rich in soluble fibers that control appetite and the production of this hormone. In first link, all articles by Dr. Mercola for weight loss. In the second link the Life Extension protocol for weight loss.
search.mercola.com/results.aspx www.lifeextension.com/.../weight-loss

Mark as Spam | Posted On : 3/13/2020 9:28:58 AM

Like | Dislike

gaylatrpc
Joined On 7/31/2009 10:47:11 AM
Add as Friend | Send Message

I am the same. However, I recently stayed at True North in Santa Rosa for 4 day water fast and it helped a lot.

Mark as Spam | Posted On : 3/13/2020 9:43:03 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

Vitamin C is effective in strengthening the immune system, capillary blood vessels as well as in the convenient use of iron, calcium, thiamine, riboflavin, folic acid, vitamins A and E. Vitamin C also acts as a cofactor for 15 different enzymes. It acts as a powerful free radical scavenger by protecting tissues against oxidative stress and reducing inflammation. Obesity is defined as "inflammatory disease" due to increased inflammation markers such as C-reactive protein (PCR), tumor necrosis factor alpha (TNF), and IL-6. Activity and serum antioxidant levels decrease in obese individuals. Vitamin C reduces systemic inflammation and inhibits hypoxia induced factor, which has potential for protection against free radicals and inflammation.
Vitamin C inhibits the formation of mature adipocytes and cell growth, inhibits lipolysis and can be considered for treatment for obesity. ...article.fundacionmenarini.com/.../JPMR-7-B.pdf - (2019)

Mark as Spam | Posted On : 3/13/2020 10:31:41 PM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

Vitamin C is effective in strengthening the immune system, capillary blood vessels as well as in the convenient use of iron, calcium, thiamine, riboflavin, folic acid, vitamins A and E. Vitamin C also acts as a cofactor for 15 different enzymes. It acts as a powerful free radical scavenger by protecting tissues against oxidative stress and reducing inflammation. Obesity is defined as "inflammatory disease" due to increased inflammation markers such as C-reactive protein (PCR), tumor necrosis factor alpha (TNF), and IL-6. Activity and serum antioxidant levels decrease in obese individuals. Vitamin C reduces systemic inflammation and inhibits hypoxia induced factor, which has potential for protection against free radicals and inflammation.
Vitamin C inhibits the formation of mature adipocytes and cell growth, inhibits lipolysis and can be considered for treatment for obesity. ...article.fundacionmenarini.com/.../JPMR-7-B.pdf - (2019)

Mark as Spam | Posted On : 3/14/2020 6:41:17 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

They have sent me a message asking about hormone therapy. This is a good source of knowledge. Consult your doctor before making a decision. "Life Extension has long recognized the value of bioidentical hormone replacement therapy, which uses hormones that are identical to those naturally produced in the body. The appeal of bioidentical hormone therapy has not been lost on the public or the medical community: nearly one-third of women who now use hormone therapy do so with bioidentical hormones. In this protocol, you will learn how to approach bioidentical HRT judiciously. You will also learn how using readily available blood tests may help guide your therapy in partnership with a qualified healthcare provider."

"In addition to estrogens, a comprehensive hormone restoration program may include progesterone, DHEA, pregnenolone and possibly testosterone. Dietary and supplemental phytoestrogens present a way for women to obtain limited hormonal support without the use of hormone therapy". www.lifeextension.com/protocols/female-reproductive/female-hormone-res...

Mark as Spam | Posted On : 3/15/2020 2:46:41 PM

Like | Dislike

cakenjean
Joined On 9/10/2008 1:03:53 PM
Add as Friend | Send Message

Hubby and I have been following a "Reverse Diabetes Diet" along the lines of Dr Hyman and Dr Fung. We started off radically with the Sugar, No Wheat, No Dairy, No Meat, no beer and no wine. Hubby first complained (How the off I can I die), but he is impressed with the results. Blood sugar levels down, no more inflammon, and weight going down. After 3 weeks, we slowly increased our carbs from initial 20 or so, to about 40 to 50 per day. We increased our fasting time slowly, in steps, until we now have minimum 12 hours fast, but some days also 16 hours, and often an unplanned dinner-to-dinner-to-dinner fasting day. Usually we eat 2 meals per day, on odd days a mid day snack.

We follow the keto guidelines, still consume no sugar, no wheat, very limited dairy (cheese, high fat yogurt and cream, mainly), meat twice a week, no pork though. But we also eat pulses, mainly lentils. Avoid potatoes and rice, except potato salad which creates resistant starch. We have a food day once Sunday, Subs a small low carb bread, sometimes a small keto cake also (freeze half), and treat on sweet potatoes for dinner. We still take all the supplements recommended by Dr. Hyman. Sometimes we allow a cup bread, because, according to Dr Hyman, one is a healthier option for bread sugar control This is our new way of living. We have been doing this for 2 and a half months. We feel great, sleep much better. And this is fairly easy to manage, once one sets one's mind to it.

Mark as Spam | Posted On : 3/15/2020 8:51:57 AM

Like | Dislike

grulla
Joined On 5/17/2012 8:03:55 AM
Add as Friend | Send Message

You might consider trying 95% pure MCT OIL capsyle and add a little to the Kefir. Kefir is very healthy.
www.mercolamarket.com/product/2590/?intlsrsn=keto-organic-mct-oil-16-f...

Mark as Spam | Posted On : 11/25/2022 2:58:31 PM

Like | Dislike

nky32022
Joined On 6/25/2015 12:27:20 AM
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"It's always the oxygen." Too much fuel is too little oxygen results in incomplete combustion...Time allows the body's intake of oxygen to catch up with the mouth's intake of food/fuel....and that results in electron energy which powers cells, biochemistry and prevents oxidative deterioration....boss simple!

Reply | Mark as Spam | Posted On : 3/17/2020 9:21:49 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

Yes RUNGDAL, Caloric restriction and more oxygen consumption. Exercise increases the metabolic rate because they need more energy, so they produce more of the chemical energy molecule called ATP. You need oxygen to make ATP, so the more ATP you make, the more oxygen your body will need. Oxygen reaches muscles and other parts of the body through the bloodstream. Oxygen dissolves in plasma, where the majority (about 98 % percent), according to information from Eastern Kentucky University) tends to hemoglobin molecules. While you're resting, only 20 to 25 percent of hemoglobin molecules deliver their oxygen to the tissues. A large amount of oxygen remains in the bloodstream in reserve.

A study by researchers at the Karolinska Institute in Sweden shows that an enzyme called FIH determines how muscles consume oxygen. Without the enzyme, the need for oxygen increases during physical exercise. When you exercise, your muscles consume oxygen to produce energy, until the oxygen level falls below a threshold. Subsequently, energy is generated by the anaerobic metabolism process, which does not require oxygen. However, this leads to the production of lactic acid and ultimately to exhaustion and cramps. In the study, the researchers demonstrate that the enzyme FIH. It is the key to how this change occurs. ki.se/ki/sci-news/how-muscles-regulate-their-oxygen-consumption - (2018)

Mark as Spam | Posted On : 3/12/2020 10:07:40 AM

Like | Dislike

forbiddenhealing
Joined On 2/21/2011 9:51:43 AM
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The Gal... Variations on the theme...O2 returns lactic acid to lactate..in mitochondria where building building acidity is "no bueno" all around....and where acidity means low DNP/low voltage.

Mark as Spam | Posted On : 3/12/2020 10:11:59 AM

Like | Dislike

Guillermoo
Joined On 4/17/2015 8:47:08 AM
Add as Friend | Send Message

... the regulation of exercise is essential for oxygen to carry out its work without accumulating lactic acid. People with anemia or who have not progressively exercised live earlier. Aspects of brain neurotransmitters also have their function, not just the musculature. When oxygen is limited, the body temporarily converts pyruvate to lactate, which allows the breakdown of glucose to continue and therefore energy production. Working muscle cells can continue this type of anaerobic energy production at high speeds for several minutes, depending lactate.

A side effect of high lactic acid levels is an increase in the acidity of muscle cells, along with disturbances of other metabolites. The same metabolic pathways that allow the breakdown of glucose into energy work poorly in this acidic environment. The researchers who assessed lactate levels right after exercise found little correlation with the level of muscle pain felt a few days later. This later muscle muscle pain (DOMS) occurs in exercises that involve many eccentric contractions, such as running downhill, resulting in the most severe DOMS, even without any noticeable burning sensations in the muscles during the event.
www.scientificamerican.com/.../why-does-lactic-acid-build

Mark as Spam | Posted On : 3/12/2020 10:46:07 AM

Like | Dislike

Like Dislike

forbiddenhealing
Joined On 2/21/2011 9:51:43 AM
Add as Friend | Send Message

Sure...Circulation is key...Activity, fluid viscosity, lung/vessel epithelia/membrane integrity....pH/charge dependent....www.otago.ac.nz/.../margreet-vissers.html

Mark as Spam | Posted On 3/12/2020 11:36:56 AM

Like Dislike

Guillermou
Joined On 4/7/2015 8:47:48 AM
Add as Friend | Send Message

Yes, to blood, cellular vitality and oxygen in consideration of health and disease. Great link on vitamin C. Caloric restriction, exercise and vitamin C against obesity. Vitamin C is effective in strengthening the immune system, capillary blood vessels as well as in the convenient use of iron, calcium, thiamine, riboflavin, folic acid, vitamins A and E. Vitamin C also acts as a cofactor for 15 different enzymes. It acts as a powerful free radical scavenger by protecting tissues against oxidative stress and reducing inflammation.

Obesity is defined as "inflammatory disease" due to increased inflammation markers such as C-reactive protein (PCR), tumor necrosis factor alpha (TNF), and IL-6. Activity and serum antioxidant levels decrease in obese individuals. Vitamin C reduces systemic inflammation and inhibits hypoxia in adipose tissue with potential for protection against free radicals and decreased lipid peroxidation. Vitamin C inhibits the formation of mature adipocytes and cell growth, inhibits lipolysis and can be considered for treatment for obesity. ..article.foodnutritionresearch.com/.../JFNR-7-8-9.pdf (2019)

Mark as Spam | Posted On 3/12/2020 12:30:52 PM

Like Dislike

forbiddenhealing
Joined On 2/21/2011 9:51:43 AM
Add as Friend | Send Message

Gui, Check Vissers 4th article...appropriate for respiratory probs currently....Hysteria? What hysteria....Just got the last pack of toilet tissue at store.

Mark as Spam | Posted On 3/12/2020 1:33:31 PM

Like Dislike

Guillermou
Joined On 4/7/2015 8:47:48 AM
Add as Friend | Send Message

YES RANDALL, It is also happening in Madrid (Spain), where half of the infected are (more than 2000). Fear is terrible. Investigators say that on April the Covd-19 will peak and then decline. In Italy the hospitals are collapsed. On the other hand, in China the situation is very controlled. It is hope,

Mark as Spam | Posted On 3/12/2020 2:01:03 PM

Like Dislike

versatile
Joined On 10/16/2007 4:23:09 PM
Add as Friend | Send Message

I am surprised this article makes no mention of environmental toxins or poisons. The definition of Alzheimer's used here seems to be quite narrow.

Reply | Mark as Spam | Posted On 11/26/2022 6:21:21 AM

Like Dislike

MMaster
Joined On 8/14/2021 1:37:23 AM
Add as Friend | Send Message

Other sources of aluminum include most brands of antacids, tinfoil, and aluminum pots and pans. Antacids and proton pump inhibitors (for GERD) also prevent the absorption of essential minerals. It is recommended that if you have GERD, you should have your stomach acid tested, because your problem may be your stomach acid is too LOW, which means taking PPIs is a recipe for disaster. Speaking of intermittent fasting, which I do, I ate with my sister at our Thanksgiving dinner yesterday, and she ate twice as much food as I. She has diabetes and thinks it would be dangerous to engage in intermittent fasting.

She is deeply into polypharmacy and also has many other co-morbidities. She is six years younger than I, but cannot walk far enough to complete a grocery shopping trip, although I can hike several miles. But what surprises me is that she routinely eats at least twice as much food as I and still feels hungry, while I feel satisfied. She used to take PPIs but claims she no longer does. On the plus side, she is eating avocados, taking apple cider vinegar, and is willing to add things like fermented beets and strawberries to her diet.

Reply | Mark as Spam | Posted On 11/26/2022 3:05:58 AM

Like Dislike

SaritaSarah
Joined On 7/21/2022 7:04:08 AM
Add as Friend | Send Message

I love when Dr. Mercola posts articles about IF. I started doing IF over 2 years ago and frequently wish I'd discovered it a decade ago. At 55, I guess it's better late than never. The benefits to physical, mental and emotional health are unmatched. Combined with eating whole foods, exercising, supplementing with nutrients and vitamins one is deficient in or cannot obtain through food, is to my mind the best way to live. IF has not only benefited my weight and bodily functions, it's improved my cognition and emotional well-being. I love that Dr. Mercola validates that decision so often.

Reply | Mark as Spam | Posted On 11/25/2022 5:44:44 AM

Like Dislike

interestedone
Joined On 6/19/2006 9:58:42 AM
Add as Friend | Send Message

thanks, if open minded (and if your intuition, trusted medical adviser, good judgement etc) says its ok, fasting can be also done on 11th moon Ekadasi each month- maybe about 5000 years of this practice (related to Lord Krishna) - just one path ***not*** the only option

Reply | Mark as Spam | Posted On 3/12/2020 1:08:32 PM

Like Dislike

cancan90
Joined On 3/12/2020 2:31:07 AM
Add as Friend | Send Message

We Muslims know this for 1400 years yet you scientist are just finding out the benefits of fasting. We fast a whole month on Ramadan from sun dawn to sunset and many fast Monday's/Thursday's. Nothing to eat or drink. Some even fast 3-10-40 days straight with just water. Allah knows best what's good for us

Reply | Mark as Spam | Posted On 3/12/2020 2:33:25 AM

Like Dislike

SaritaSarah
Joined On 7/21/2022 7:04:08 AM
Add as Friend | Send Message

While I respect the reasons behind fasting for ritual (Islam, as well as several ancient cultures have practiced this for thousands of years), I can't go an hour, let alone 12 without water. Dry fasting isn't for me. Have you tried intermittent fasting outside of Ramadan?

Mark as Spam | Posted On 11/25/2022 5:50:55 AM

Like Dislike

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