MERCOLA
Take Control of Your Health

Dr. Mercola's 2021 Biohacking Lecture

Analysis by Dr. Joseph Mercola ✔ Fact Checked

STORY AT-A-GLANCE -

- In my 2021 Bulletproof biohacking lecture, I addressed simple cost-effective ways to safeguard and improve your health in these troubled times
- One of my top recommendations is to optimize your vitamin D level. There's a strong correlation between your vitamin D level and your risk of dying from COVID-19. At a level of 17 ng/mL, the death rate is nearly 100%. At a level of 35 ng/mL, the death rate is near zero
- Another foundational health principle is physical exercise. Strength training in particular is crucial and only becomes more important with age, as it prevents frailty
- Other hacks include time-restricted eating, optimizing your NAD+ level with exercise, and avoiding omega-6 linoleic acid, which may be the most detrimental ingredient in the modern diet
- If you enjoyed my lecture you can sign up now for next year's Biohacking conference. Between now and September 15, 2022, you can get 40% off your attendance fee, plus another $100 discount if you use the discount code MERCOLA

My absolute favorite event to speak at is Dave Asprey's Biohacking event. He was kind enough to allow me to run my presentation at this year's event in Orlando. To say it was beyond fantastic is a serious understatement. I learned so much and had a chance to personally connect with over 1,000 people. It was beyond great.

In my video above, I review how COVID gene therapy injections will almost assuredly be granted emergency use authorization for children and babies before this year is over, despite having been linked to serious blood disorders and heart inflammation. Third booster shots have already been rolled out in the U.S. for those older than 65 and anyone at high risk for exposure due to their profession.

We're also facing vaccine mandates around the country, and vaccine passports are being implemented in certain areas. I predict it won't be long before a social credit system is rolled out as well, which will be tied together with the vaccine passports and a digital economy.

While times are dire, I firmly believe that, in the end, we will win and sanity will be restored. Unfortunately, things may get a whole lot worse before they get better. With that in mind, what can you do? How can you prepare? How do we keep fighting the good fight for freedom?

Take Control of Your Health

"Take control of your health" has been my catchphrase since I started this website, and right now, that is perhaps the best advice anyone can follow. You need to stay healthy and out of the hospitals.

One of my top recommendations for safeguarding your health at this time is to optimize your vitamin D level. In my lecture, I show a graph that clearly illustrates the correlation between higher vitamin D levels and your risk of dying from COVID-19. At a level of 17 ng/mL, the death rate is nearly 100%. At a level of 35 ng/mL, which is still below the ideal minimum of 40 ng/mL, the death rate is near zero.

Similarly, your vitamin D level is also strongly correlated with COVID-19 severity. In one study, cited in the lecture, 96% of critical and severe cases had low vitamin D levels (below 29 ng/mL) and 93% of moderate cases were deficient. Meanwhile, 98% of those with mild cases had a vitamin D level of 30 ng/mL or higher.

The evidence for vitamin D in COVID-19 is so compelling, I wrote a paper[1] on it together with William Grant, Ph.D., and Dr. Carol Wagner, which was published in the peer-review journal Nutrients at the end of October 2020. The paper is titled "**Evidence Regarding Vitamin D and Risk of COVID-19 and Its Severity**."

Vitamin D and Your Risk for COVID

As noted in our paper, dark skin color, increased age, preexisting chronic conditions and vitamin D deficiency are all features of severe COVID disease, and of these, vitamin D deficiency is the only factor that is readily and easily modifiable.

You may be able to reverse chronic disease, but that typically takes time. Optimizing your vitamin D, on the other hand, can be achieved in just a few weeks, thereby significantly lowering your risk of severe COVID-19.

In our paper, we review several of the mechanisms by which vitamin D can reduce your risk of COVID-19 and other respiratory infections, including but not limited to the following:[2]

- Reducing the survival and replication of viruses[3]
- Reducing inflammatory cytokine production
- Maintaining endothelial integrity — Endothelial dysfunction contributes to vascular inflammation and impaired blood clotting, two hallmarks of severe COVID-19
- Increasing angiotensin-converting enzyme 2 (ACE2) concentrations, which prevents the virus from entering cells via the ACE2 receptor — ACE2 is downregulated by SARS-CoV-2 infection, and by increasing ACE2, you also avoid excessive accumulation of angiotensin II, a peptide hormone known to increase the severity of COVID-19

Vitamin D is also an important component of COVID-19 prevention and treatment for the fact that it:

- Boosts your overall immune function by modulating your innate and adaptive immune responses
- Reduces respiratory distress[4]
- Improves overall lung function
- Helps produce surfactants in your lungs that aid in fluid clearance[5]
- Lowers your risk of comorbidities associated with poor COVID-19 prognosis, including obesity,[6] Type 2 diabetes,[7] high blood pressure[8] and heart disease[9]

Other Health Benefits of Vitamin D

Aside from its benefits against infections, vitamin D also has many other health benefits through both direct and indirect activities. Among its direct actions are:

- Reducing DNA damage
- Improving central nervous system functions
- Improving cognition and depression
- Reducing risk of cardiovascular disorders, including heart attacks and strokes

Indirectly, vitamin D also:

- Improves your mitochondrial function
- Reduces obesity, metabolic syndrome and diabetes
- Improves autoimmunity

Through these direct and indirect actions, plus its ability to control oxidative stress, vitamin D helps to both facilitate healthy aging and prevent pulmonary diseases, falls, cancer and sarcopenia (age-related muscle loss).

How to Optimize Your Vitamin D

While most people would probably benefit from a vitamin D3 supplement, it's important to get your vitamin D level tested before you start supplementing. The reason for this is because you cannot rely on blanket dosing recommendations. The crucial factor here is your blood level, not the dose, as the dose you need is dependent on several individual factors, including your baseline blood level.

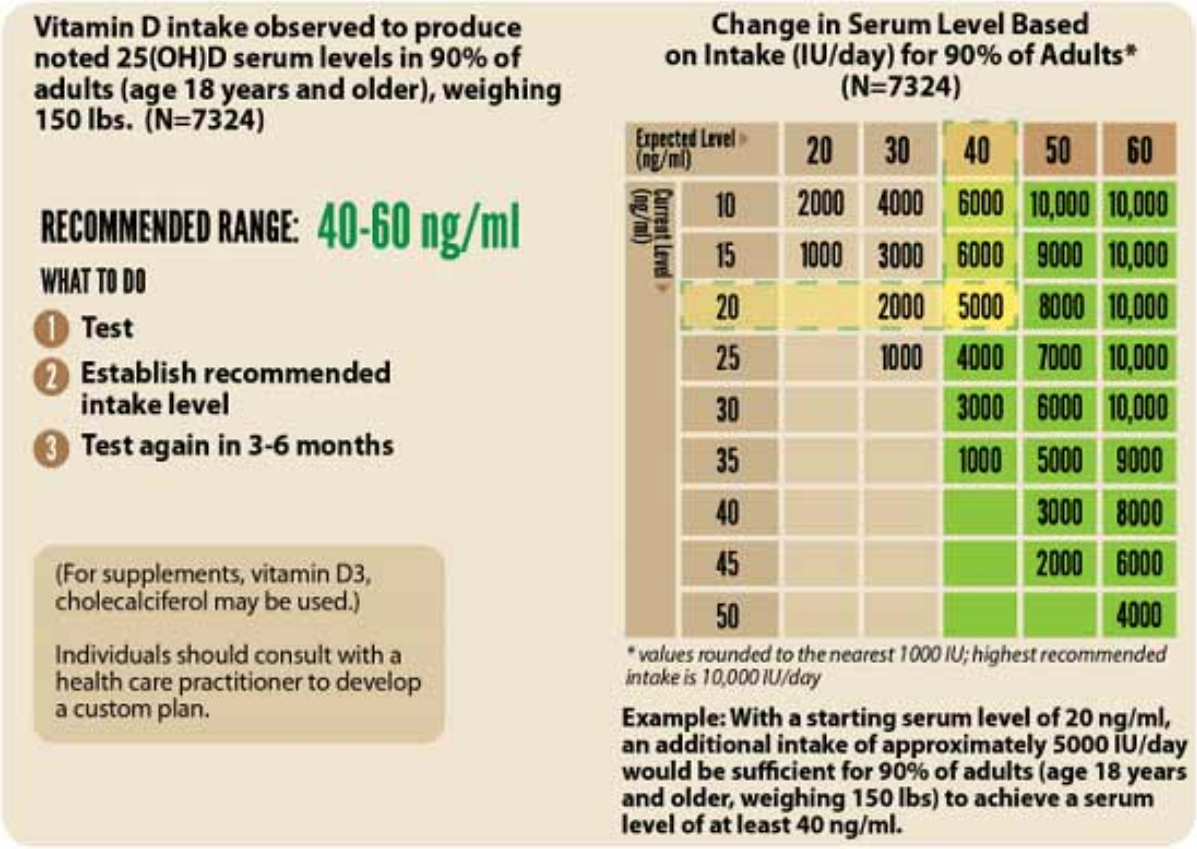
Data from GrassrootsHealth's D*Action studies suggest the optimal level for health and disease prevention is between 60 ng/mL and 80 ng/mL, while the cutoff for sufficiency appears to be around 40 ng/mL. In Europe, the measurements you're looking for are 150 to 200 nmol/L and 100 nmol/L respectively.

I've published a comprehensive **vitamin D report** in which I detail vitamin D's mechanisms of action and how to ensure optimal levels. I recommend downloading and sharing that report with everyone you know. A quick summary of the key steps is as follows:

1. **First, measure your vitamin D level —** One of the easiest and most cost-effective ways of measuring your vitamin D level is to participate in the **GrassrootsHealth's** personalized nutrition project, which includes a vitamin D testing kit.

   Once you know what your blood level is, you can assess the dose needed to maintain or improve your level. If you cannot get enough vitamin D from the sun (you can use the DMinder app[10] to see how much vitamin D your body can make depending on your location and other individual factors), then you'll need an oral supplement.

2. **Assess your individualized vitamin D dosage —** To do that, you can either use the chart below, or use GrassrootsHealth's **Vitamin D*calculator**. To convert ng/mL into the European measurement (nmol/L), simply multiply the ng/mL measurement by 2.5. To calculate how much vitamin D you may be getting from regular sun exposure in addition to your supplemental intake, use the DMinder app.[11]

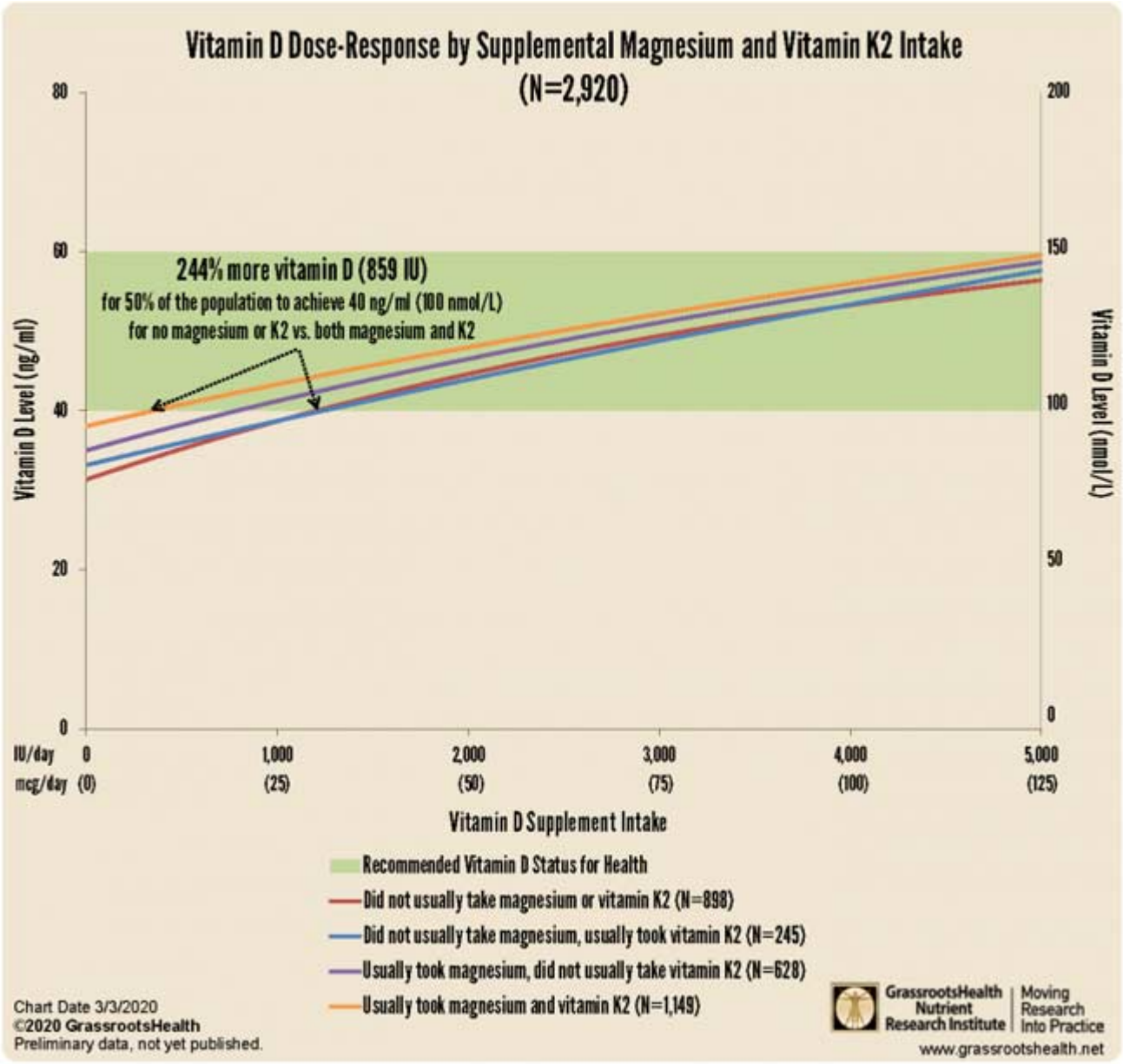


3. **Retest in three to six months —** Lastly, you'll need to remeasure your vitamin D level in three to six months, to evaluate how your sun exposure and/or supplement dose is working for you.

Take Your Vitamin D With Magnesium and K2

It's strongly recommended to take magnesium and K2 concomitant with oral vitamin D. Data from nearly 3,000 individuals reveal you need 244% more oral vitamin D if you're not also taking magnesium and vitamin K2.[12]

What this means in practical terms is that if you take all three supplements in combination, you need far less oral vitamin D in order to achieve a healthy vitamin D level.



The Importance of Exercise

Another foundational health principle is physical exercise. I've been exercising for nearly 50 years now, and I recently set a new personal record, at the age of 67. In 2021, I was able to deadlift 400 pounds.

> **"Strength training is absolutely crucial for optimal health and only becomes more so as you age. The**

> **reason for this is because strength training helps you avoid frailty.”**

I’m not saying you need to be able to lift hundreds of pounds, but strength training in general, even if using light weights, is absolutely crucial for optimal health and only becomes more so as you age. The reason for this is because strength training helps you avoid frailty.

Many don’t realize that frailty is lethal. Frailty is an umbrella term that encompasses several age-related clinical conditions involving deterioration of strength and malfunctions in the body, which then makes you more vulnerable to disease and hampers recovery from illness. I am very familiar with this as both my parents died from frailty.

According to Chinese research[13] published in August 2021, 59.9% of seniors aged 65 to 79 in China had signs of pre-frailty, while 95% of centenarians (those older than 100) were frail. As noted by the authors:

> *“Both pre-frailty and frailty were associated with the increased risk of multiple adverse outcomes, such as incident limited physical performance, cognitive decline and dependence, respectively.*
>
> *Frail males were more vulnerable to the risk of mortality (hazard ratio [HR] = 2.3 …) compared with frail females (HR = 1.9 …). The strongest association between frailty and mortality was observed among the young-old (HR = 3.6 …).*
>
> *Exhaustion was the most common domain among patients with pre-frailty (74.8%) or frailty (83.2%), followed by shrink (32.3%) in pre-frailty and low mobility (83.0%) in frailty. Inactivity among females aged 65–79 years showed the strongest association with the risk of mortality (HR = 3.50 …).”*

The Case for Blood Flow Restriction Training

The most profound and effective type of strength training I know of is called blood flow restriction (BFR) training. It was invented in 1966 in Japan, and introduced in the U.S. in 2010.

BFR involves exercising your muscles using no or very light weights while partially slowing arterial inflow and modifying venous outflow in either both proximal arms or legs using thin elastic pneumatic (inflatable) KAATSU bands.[14]

By modifying the venous blood flow, you create a relatively hypoxic (low oxygen) environment in the exercising muscle, which in turn triggers a number of physiological benefits. One of the reasons I'm so passionate about BFR training is because it has the ability to prevent and widely treat sarcopenia (skeletal muscle loss) like no other type of training.

Importantly, it allows you to use very light weights, which makes it suitable for the elderly and those who are already frail or recovering from an injury. And, since you're using very light weights, you don't damage the muscle and therefore don't need to recover as long.

While most elderly cannot engage in high-intensity exercise or heavy weightlifting, even extraordinarily fit individuals in their 60s, 70s and 80s who can do conventional training will be limited in terms of the benefits they can achieve, thanks to decreased microcirculation. This is because your microcirculation tends to decrease with age.

With age, your capillary growth diminishes, and capillary blood flow is essential to supply blood to your muscle stem cells, specifically the fast twitch Type II muscle fiber stem cells. If they don't have enough blood flow — even though they're getting the signal from the conventional strength training — they're not going to grow and you're not going to get muscle hypertrophy and strength.

BFR, because of the local hypoxia created, stimulates hypoxia-inducible factor-1 alpha and, secondarily, vascular endothelial growth factor (VEGF), which acts as "fertilizer" for your blood vessels. VEGF allows your stem cells to function the way they were designed to when they were younger.

The hypoxia also triggers vascular endothelial growth factor, which enhances the capillarization of the muscle and likely the veins in the arteries as well. Building muscle and improving blood vessel function are related, which is why BFR offers such powerful stimulus for reversing sarcopenia.

In short, BFR has a systemic or crossover training effect. While you're only restricting blood flow to your extremities, once you release the bands, the metabolic variables created by the hypoxia flow into your blood — lactate and VEGF being two of them — thereby spreading this "metabolic magic" throughout your entire system.

You can learn more about KAATSU by viewing the video below. You can get most of the benefits by purchasing inexpensive bands like this on Amazon. If you are hardcore like me, you can go all out and get the best that many professional athletes use. For a limited time, you can get 10% off the KAATSU band by using this link: **www.kaatsu.com/go/NVIC**

The Power of Time-Restricted Eating

A third biohack that will put your health on the right track is intermittent fasting or time-restricted eating, where you eat all your meals for the day within a six- to eight-hour window. It's a powerful intervention for reducing insulin resistance, restoring metabolic flexibility and losing excess body fat.

Aside from old age, obesity — which is often rooted in insulin resistance — has been identified as one of the primary risk factors for being hospitalized with COVID-19. It doubled the risk of hospitalization in patients under the age of 60 in one study,[15] even if the individual had no other obesity-related health problems. A French study[16,17] also found obese patients treated for COVID-19 were more likely to require mechanical ventilation.

One hypothesis for why obesity is worsening COVID-19 has to do with the fact that obesity causes chronic inflammation.[18] Having more proinflammatory cytokines in circulation increases your risk of experiencing a cytokine storm. Remarkably, as

illustrated in my lecture, 42.4% of Americans are now obese, not just overweight. Compare that to the obesity rate 115 years ago, which was 1.2%.

Benefits of NAD+

You'll also want to make sure you're eating at least three hours before bedtime. One of the reasons for this advice is because avoiding late-night eating will increase your nicotinamide adenine dinucleotide (NAD+) levels, which are important for a variety of bodily functions. Sirtuins, so-called longevity hormones, are also dependent on NAD+.

It will also have a negative impact on your nicotinamide adenine dinucleotide phosphate (NADPH) level, which is essentially the true cellular battery of your cell and has the reductive potential to recharge your antioxidants. The largest consumer of NADPH is the creation of fatty acids.

If you're eating close to bedtime, then you're not going to be able to use the NADPH to burn those calories as energy. Instead, they must be stored some way. To store them, you have to create fat, so you're basically radically lowering your NADPH levels when you eat late at night because they are being consumed to store your extra calories by creating fat.

Aside from avoiding late-night eating and snacking, the best way to raise your NAD+ level is — intense resistance exercise! Exercise such as BFR training raises the rate limiting enzyme for remaking NAD+, NAMPT. Merely by exercising very intensely, you can raise your NAD+ level by 20 to 30 times more than using precursors.

The problem, though, is that most are unwilling to train this hard. I have found that BFR training is highly effective for increasing NAD+ levels, which is why I rarely use precursor supplementation.

Avoid This Dangerous Fat

Another super-simple biohack that can add years to your life is to avoid one of the most dangerous foods in the modern diet, namely the omega-6 fat linoleic acid (LA). Dietary

fats are a crucial component of a healthy diet, but the devil's in the details and the type of fats you choose can make a world of difference.

LA makes up the bulk — about 80% — of the omega-6 consumed and is the primary contributor to nearly all chronic diseases. Nothing will destroy your health faster than excess LA, which acts as a metabolic poison. To avoid this dangerous fat, you'll want to cut down, avoid or eliminate:

- Conventionally raised chicken and pork
- Processed seed oils such as corn oil, soybean oil, sunflower and canola oil, as well as most olive oils and avocado oils
- All processed foods, including virtually all restaurant sauces
- Virtually all seeds and nuts
- Virtually all pastries unless butter is substituted for vegetable oil

Seed oils, all of which contain double-digit percentages of LA,[19] have been linked to heart disease, gastrointestinal diseases such as irritable bowel disorder, inflammatory conditions such as arthritis, certain cancers[20] and even COVID-19.

A compelling report[21] in the journal Gastroenterology showed a person's unsaturated fat intake is associated with increased mortality from COVID-19, primarily by promoting life-threatening organ failure. On the bright side, they suggested early treatment with inexpensive calcium and egg albumin might reduce rates of organ failure and ICU admissions.

Since diet-related comorbidities are responsible for 94% of all COVID-19-related deaths,[22] taking control of your diet is a simple, commonsense strategy to lower the risks associated with this infection. To determine how much LA you're getting from your diet, use a nutritional calculator such as **Cronometer**.

With everything going on in the world and with all the threats now facing us, there's never been a better time to grab the proverbial bull by the horns and start to safeguard

and build your health. The biohacks I review in my lecture are deceptively simple ways to do that without spending a fortune.

Sign up NOW for Next Year's Event at a GREAT Discount

September 15 through 17, 2022 — just short of one year from now — the eighth annual BioHacking Conference will take place in Beverly Hills, California. Secure your spot at the 2022 conference by registering online right now.

Between now and September 15, 2022, you can get 40% off your attendance fee, plus another $100 discount if you use the discount code MERCOLA.

Normally, these links provide affiliate commissions, but I assure you that I do not earn a penny from your registration. I asked Dave to give my commissions to YOU so you would be more likely to attend, as I believe it is one of the best health events out there for serous health students. Planned speakers at the 2022 conference include yours truly, Dave Asprey, Dr. Caroline Leaf, Dr. Stephen Sinatra and Charlie Engle.

Sources and References

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