

Metabolic Inflexibility Is Key Risk Factor for COVID-19

Analysis by [Dr. Joseph Mercola](#) ✓ Fact Checked

STORY AT-A-GLANCE

- › While SARS-CoV-2 is a rampant virus that can cause severe problems in vulnerable individuals, the real pandemic – the underlying cause that makes people susceptible to complications from the infection in the first place – is poor metabolic health
- › Aside from old age, obesity has been identified as one of the primary risk factors for being hospitalized with COVID-19 – doubling the risk of hospitalization in patients under the age of 60 in one study
- › One hypothesis for why obesity is worsening COVID-19 has to do with the fact that obesity causes chronic inflammation. Having more proinflammatory cytokines in circulation increases your risk of experiencing a cytokine storm
- › Insulin resistance is another top risk factor for COVID-19 that worsens outcomes and increases your risk of death
- › There are five primary parameters of metabolic health: waist circumference, insulin sensitivity, blood pressure, and triglyceride and HDL levels. Having three or more abnormal parameters is indicative of metabolic syndrome

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While SARS-CoV-2 is a rampant virus that can cause severe problems in vulnerable individuals, the real pandemic – meaning the underlying cause that makes people

susceptible to complications from the infection in the first place — is metabolic inflexibility or insulin resistance.

In this interview, Dr. Aseem Malhotra, a British cardiologist and author of "[The 21 Day Immunity Plan](#)," delves into the specifics and explains the role insulin resistance plays in the COVID-19 pandemic.

"The real pandemic is poor metabolic health, or metabolic inflexibility," Malhotra says. "I had become aware, as early on as March, when we were getting data from China and Italy, that there was a clear link between conditions related to excess body fat, in simple terms defined as poor metabolic health, [and] worse outcomes from COVID-19.

We're talking about conditions like Type 2 diabetes, high blood pressure, heart disease and, of course, obesity. And that data kept emerging. That link was so clear, and it wasn't just out of the blue.

As somebody who's been a practicing doctor for almost two decades, it's very clear — we know people who have poor metabolic health certainly tend to have worse outcomes from really any infection, but COVID-19 has highlighted it more, and made us think about it more.

We're talking about chest infections, hospital admissions with pneumonia [and] Type 2 diabetics tend to do a lot worse. I was looking at that data and thought, 'There's something missing out of this mainstream conversation.' It was getting a lot of immediate coverage across the world, in the U.K., in the United States, but no one was talking about lifestyle."

Obesity Is a Significant COVID-19 Risk Factor

Aside from old age, obesity has been identified as one of the primary risk factors for being hospitalized with COVID-19 — doubling the risk of hospitalization in patients under the age of 60 in one study¹ — even if the individual has no other obesity-related health

problems. A French study^{2,3} 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.⁴ Having more proinflammatory cytokines in circulation increases your risk of experiencing a cytokine storm.

A cytokine storm response is typically the reason why people die from infections, be it the seasonal flu, Ebola, urinary tract infection or COVID-19. Obesity also makes you more vulnerable to infectious diseases by lowering your immune function.^{5,6,7,8,9,10}

Insulin Resistance Augments Infection Risks

Obesity is often rooted in insulin resistance, brought on by a flawed diet, and insulin resistance is another top risk factor for COVID-19 that worsens outcomes and increases your risk of death. An April 15, 2020, article¹¹ in *The Scientist* reviews evidence^{12,13} showing how higher blood glucose levels impact viral replication and the development of cytokine storms.

While the research in question looked at influenza A-induced cytokine storms, these findings may well be applicable in COVID-19 as well. In a *Science Advances* press release, co-author Shi Liu stated:¹⁴

"We believe that glucose metabolism contributes to various COVID-19 outcomes since both influenza and COVID-19 can induce a cytokine storm, and since COVID-19 patients with diabetes have shown higher mortality."

COVID-19 Risk Factors Can Be Rapidly Ameliorated

The good news, as Malhotra stresses, is that the lifestyle factors that make you more prone to severe COVID-19 infection and death can be modified and ameliorated in as little as 21 days, simply by changing your diet. Like me, Malhotra feels this has been sorely missing from pandemic response messaging.

"They should have been saying, 'Listen, there's no better time for you to really think about trying to improve your health and looking into what you eat, [get] moderate exercise, sleep, all those things,'" Malhotra says. "But it wasn't happening."

To fill the information gap, Malhotra began writing. Initially, he wrote a series of articles for British newspapers. He also got the opportunity to speak about this on Sky News.

"I made it very clear. I said, 'Listen, there's a chance at some point we're all going to get this virus, and we want to make sure that we're in the best position to be able to deal with it, so that we don't get sick from it when it happens.'

I think I was probably, maybe, the only doctor who had the opportunity to say that in a mainstream media, probably in the world, at that time; I think no one else had said it."

As more data became available, Malhotra's writings turned into "[The 21 Day Immunity Plan](#)." Malhotra also had the opportunity to share information with the U.K. Secretary of State for Health, Matt Hancock, and by the time the book was finished, Prime Minister Boris Johnson came out saying something needs to be done, on a policy level, about the obesity epidemic.

That said, we don't have to have government policies in place to personally implement these lifestyle strategies. The information is available. It's well-documented, noncontroversial and relatively simple to do. Surprisingly, Malhotra's message has been largely well-received, and hasn't been censored to the extent that many others have.

“ One of the bits of advice to start with is that you should cut out ultraprocessed food and low quality carbs. That is really where we need to start. If you cut that out, then you will also automatically reduce your refined carbs, sugar and omega-6 oils. ”

Unfortunately, we're still fighting against a tsunami of dietary misinformation and false advertising on a daily basis, which makes it difficult to really get this message out and make it stick. "If every day the government was putting out a message saying, 'Metabolic health is the key,' then we would have a really big impact," Malhotra says.

Most People Have Poor Metabolic Health

The central thesis of Malhotra's book is that we have a pandemic of metabolic inflexibility or metabolic ill health. There are five primary parameters of metabolic ill health, which include having:

1. A large waist circumference
2. Prediabetes or Type 2 diabetes
3. Prehypertension or hypertension (high blood pressure)
4. High blood triglycerides
5. Low HDL cholesterol

If you have all of those five parameters within the normal ranges, you are in good metabolic health. Having three or more abnormal parameters is indicative of metabolic syndrome. Metabolic inflexibility can further be divided into two primary subsets, namely:

1. **Insulin resistance**, signs of which typically include high blood pressure, high triglycerides, high cholesterol, obesity and other variables connected with that.

In the U.S., NHANES data¹⁵ published in 2016 reveal 87.8% of Americans are metabolically unhealthy, based on five parameters. That data is over four years old now, so the figure is likely greater than 90% of the population today.

According to a January 2019 update by the U.S. Centers for Disease Control and Prevention, more than 122 million American adults have diabetes or prediabetes¹⁶ — conditions which have been shown to increase your chances of contracting and even dying from COVID-19^{17,18,19,20,21,22}

2. Vitamin D deficiency

Metabolic Syndrome Triples COVID-19 Fatality Risk

Malhotra notes:

"The data from COVID-19 shows the highest risks of death and hospitalization are in people with metabolic syndrome, not obesity. Obesity probably doubles your risk of death, but with metabolic syndrome, it's around a 3.5 times increased risk of death – more than threefold – and about five times the risk of hospitalization if you get COVID-19.

So that is the major problem. And the reason why that's important is it also affects many, many people. This is why BMI [body mass index], to be honest, I think should be thrown out; I mean, it's useless, it's outdated.

We should be looking at metabolic health, because up to 40% of people with a so called normal BMI, who may be told they've got a healthy weight, actually are metabolically unhealthy. That's a huge proportion of people, and there are disparities depending on which ethnicity you're from.

But the basic problem with BMI, which is a calculation based upon your weight in kilograms divided by your height in meters squared, is it doesn't take into consideration your body fat percentage, your muscle mass, your ethnicity ...

It misses a huge group of people who are probably vulnerable and could institute lifestyle changes to help themselves if they were advised to do so. But a lot of them aren't being advised because they're being told they've got a healthy weight.

If everybody knew their metabolic health markers and were then given advice to do things about it, then, as I point out in the book, within a few weeks you'd probably notice significant changes. Of course, it's going to vary from person to person.

With regard to vitamin D, it is again something we've ignored for a long time. In the U.K., a significant proportion of people are either deficient or severely deficient in vitamin D, and it has such an important role in immune function. Most cell receptors in your body have vitamin D receptors, and it is involved in enhancing both innate and adaptive immunity."

The bottom line is you need to have the five metabolic parameters listed above within the normal ranges, and you need an optimal blood level of vitamin D, which is now thought to be between 40 ng/mL and 60 ng/mL.

"There was a study in Indonesia that showed that in people hospitalized with COVID-19 – those who had severe vitamin D deficiency versus those that had normal ranges of vitamin D in their blood – there was a tenfold difference in death rates, which is extraordinary. So, [vitamin D] certainly has a very important role to play," Malhotra says.

"The ideal scenario is to get vitamin D from sunlight because it actually stays in your bloodstream longer. But, certainly, at least through the winter months, you should be taking a supplement. And I think the good thing about that is it's cheap ...

I suspect getting good health actually is going to come from just eating real food, and being out in nature, and doing more exercise, and reducing our stress, and social connection; all of those things, I think, are the key to longevity and good quality of life."

How to Improve Your Metabolic Health

So, just how do you improve those five metabolic parameters? Malhotra addresses this in his book, of course. In summary, to optimize your metabolic health and reverse metabolic syndrome, you'll want to:

- **Limit or eliminate foods that promote insulin resistance** – Topping this list are processed foods high in industrial seed oils, added sugars and refined

carbohydrates (i.e., bread, pasta and white rice).

"Sugar is probably one of the major dietary culprits," Malhotra says. "It certainly also, beyond its calorie issue, seems to have independent effects and adverse effects on metabolic health ...

So, sugar is one of the first things I always talk about that people need to eliminate from their diet ... Most people you can break those addictions usually within three to six weeks."

As explained in my interview with Dr. Chris Knobbe, industrially processed seed oils such as canola, corn and soy oil (most of which are also genetically engineered) appear to be at the heart of most if not all chronic diseases of the modern world.

Evidence suggests they may be an even greater health threat than added sugar. Malhotra has also addressed this issue in his book, "The Pioppi Diet,"²³ published in 2017. Aside from more direct harms, one of the ways in which these oils undermine your health is by skewing your omega-3 to omega-6 ratio, as they're excessively high in omega-6 linoleic acid.

When used in cooking, they also produce toxic, carcinogenic aldehydes. In lieu of seed oils, use healthy saturated fats such as coconut oil, grass fed butter, organic ghee or lard.

- **Be more physically active** – This too can ameliorate and reduce metabolic disease risk markers. Just be mindful not to go overboard, as excessive exercise will actually lower your immune function and put you at increased risk of respiratory infections.
- **Optimize your sleep.**
- **Reduce your stress.**

As noted by Malhotra:

"Combining all those together – that synergy of the diet and all the other lifestyle factors – has profound and rapid effects on health. So that's where we need to change the narrative.

One of the bits of advice to start with is that you should cut out ultraprocessed food and low quality carbs. At least go cold turkey for a few weeks. You may reintroduce them or have them as occasional treats, but this should not be making up the bulk of your calorie consumption.

That is really where we need to start. If you cut that out, then you will also automatically reduce your refined carbs, sugar and omega-6 oils. All of those things are going to be significantly reduced from your diet."

Time-Restricted Eating Schedule Boosts Metabolic Health

In his book, Malhotra also recommends implementing a time-restricted eating schedule or intermittent fasting where you limit your eating to a window of, ideally, six to eight hours a day.

"My cousin, who lives in California, struggled for most of his childhood and early adulthood as being particularly overweight," Malhotra says. "Now, he's probably the slimmest and maybe the fittest member of the whole family because he changed his diet.

He is religious with his time-restricted eating. I mean, he does it every day, and now he's literally got a flat stomach, he's in optimal metabolic health and it's amazing. But he told me it took time for him to really see the massive benefits of it. It took about a year to get rid of the last bit of fat around his belly."

More Information

To learn more, be sure to pick up a copy of Malhotra's book, "[The 21 Day Immunity Plan](#)." It's an easy read that emphasizes and summarizes the core lifestyle basics you need to understand and apply to improve your metabolic health, which in turn will reduce your

risk of complications should you come down with symptomatic COVID-19 illness. Social Media info for Dr. Malhotra can be found on his site at doctoraseem.com.

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