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The sinister pandemic culprit putting America at higher risk than Third World countries

Plus, the 5 critical infection-thwarting nutrients you're probably not getting enough of

When I was doing fieldwork in Southeast Asia during the mid-1970s, it was already a well-known fact that nutrient deficiencies increase the risk of infections—and that inadequate nutrition was a clear problem lurking behind endemic, pandemic, and epidemic infectious diseases in Third World countries.

But here we are, nearly 50 years later, and we *still* hear next to nothing in the U.S. about the importance of nutrients for boosting immunity and combatting infectious disease—even after a year of the coronavirus pandemic.

Sure, some public health experts have begun dribbling out information about the importance of vitamin D and other nutrients for coronavirus symptoms. (I discussed new research on the effects of vitamins C and D on COVID-19 in the July 2020 issue of *Insiders' Cures*.)

But the science about nutrition and infections has been a lot clearer, for a lot longer, than the mostly silent "experts" will admit.

And now, a new study illustrates just how far our modern public health experts need to go in order to catch up to the Third World when it comes to nutrition, dietary supplements, immune function, *and* infectious diseases.

Large percentages of Americans don't get enough key nutrients

Using data from the U.S. National Health and Nutrition Examination Survey (NHANES) between 2005 and 2016, researchers analyzed the intake of nutrients critical for healthy immune function in more than 26,000 men and women.

And even using the government's woefully inadequate recommended daily allowance (RDA), the results were sobering. (As I've reported before, these recommendations are determined to help avoid frank nutritional deficiency diseases—rather than the optimal amounts shown by science to help prevent the chronic and infectious diseases that plague us today.)

According to the study:

- 45 percent of the participants had vitamin A levels below the RDA
- 46 percent had low vitamin C levels
- 95 percent were deficient in vitamin D
- 84 percent had low vitamin E levels
- 15 percent were below the RDA for zinc

And remember, the recommended amounts are totally inadequate to begin with. Plus, the researchers extrapolated this data to the entire U.S. population and concluded that the nutrient insufficiencies were <u>so</u> severe, they could ultimately increase the risk of infectious diseases in the population.

In addition, the researchers reported that the nutrient deficiencies were particularly notable in the people who <u>didn't</u> take dietary supplements—and instead relied upon food alone for nutrients.

While a healthy, balanced diet *should* supply much-needed

In this issue:

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nutrients, in today's America, that's sadly not the case. Due to the decline in food quality and nutrient composition—not to mention the poor food choices made by too many individuals, grocery store chains, and restaurants—the risk of inadequate nutrition is real. Which is why smart supplementation is often necessary.

Key vitamins and nutrients for fighting infectious disease

A healthy immune system helps you fight off virtually every disease (not to mention infections and viruses like COVID-19). And key vitamins and nutrients can help boost and balance your immune system…

Vitamin A has long been associated with resistance to infections, and plays a key role in supporting immune cells. It also benefits the gastrointestinal microbiome, which is really "ground zero" for health—and is critical for the immune system.

Vitamin A deficiency increases risks for viral infections in both children and adults. And in a classic "Catch-22," infections and illnesses deplete A in the blood, bumping up requirements for this nutrient. (I'll discuss more benefits of vitamin A in next month's issue as well—stay tuned!)

Recommended dose: Despite widespread U.S. deficiency, I don't recommend taking vitamin A supplements. Because A is fat soluble, it has the potential of building up to high levels in your body. Fortunately, this is one instance where getting enough from food is possible, since there are plenty of foods rich in vitamin A, including meat, fish, and dairy.

Plus, yellow and orange fruits and vegetables like sweet potatoes, pumpkin, squash, carrots, and cantaloupe are loaded with certain carotenoids, which your body safely and naturally converts to vitamin A. So, be sure to add these healthy foods daily to your balanced diet.

Vitamin C has long been recognized for its ability to combat colds. Indeed, it's required for a healthy immune response against infections. In fact, this nutrient is so essential that all animals make their own vitamin C, without needing to obtain it from the diet, except for humans and guinea pigs.

Vitamin C is water-soluble, meaning it can't be stored in the body, so it needs to be replenished daily. Immune system cells require high amounts of vitamin C to act as antioxidant and antimicrobial agents, so it's not surprising that C levels become rapidly depleted during colds, flus, and lung infections. In fact, research shows that the amount of vitamin C in immune cells can drop by as much as 50 percent when you have a cold—and it can take a week after recovery for your C levels to return to normal.

Recommended dose: 250 mg twice a day. If you're fighting a cold, flu, or other infectious disease, you can safely consume up to 2,000 mg a day. One study found that taking 1,000 mg of vitamin C a day shortened the duration of colds by 6 percent, and 2,000 mg decreased duration by 21 percent.[2]

Vitamin D deficiency is a major public health problem worldwide, in all age groups. That's particularly alarming when it comes to infectious diseases, because this vitamin is a central regulator of the body's defenses against infections. Low levels of D are associated with increased risks of respiratory infections, ear infections, urinary tract infections, hepatitis, and other infections.

For most people living in the northern hemisphere, the body's ability to make D from sunshine is nonexistent during winter—right when cold and flu season hits. A dramatic example occurred during the 1918-19 Spanish flu pandemic, when there were higher

death rates in populations with less sunlight exposure. This was even before vitamin D was discovered during the 1920s. And now, in the age of coronavirus, new research links low vitamin D levels to a higher risk of severe complications and death.

Recommended dose: Ask your doctor for a vitamin D blood test. Optimal levels are between 50 and 75 nmol/L. To help reach and/or maintain these levels, I recommend supplementing with 10,000 IU per day—especially during winter. Just remember to get your levels tested by your doctor once every six months.

Vitamin E enhances immune response by boosting white blood cell activity. It also prevents oxidative damage to cellular membranes, preserving the function of immune cells.

Vitamin E is especially crucial for older people. Several studies show it can reduce the incidence and severity of respiratory infections in people whose immune systems may be compromised due to age.

Recommended dose: 50 mg per day. You'll want to look for a supplement that ideally contains the eight active compounds that make up vitamin E—four tocopherols (alpha, beta, delta, and gamma) and four tocotrienols (also called alpha, beta, delta, and gamma).

But again, following a healthy, balanced diet is key—or you may need higher amounts.

Zinc supports the immune system through a number of different functions. Just a mild deficiency in zinc can increase the risk and severity of viral infections. And research shows that people over the age of 60 tend to have lower zinc blood levels than younger adults.

Without sufficient zinc levels, regulation of the immune system can run out of control, resulting in the hyper-inflammatory states that damage lungs and other organs (as can be seen in serious cases of coronavirus, which is why zinc is so important in treating this particular infection).

Recommended dose: Up to 100 mg of zinc acetate lozenges per day. One study found that a daily combination of 10 to 30 mg of zinc with 1,000 mg of vitamin C shortened the duration of respiratory tract infections, including the common cold.[3]

Of course, there's one eye-opening conclusion from this major new research:

> *Most people today need to take dietary supplements to protect themselves against infectious diseases. And smart supplementation is still necessary to complement a healthy, balanced diet.*

Otherwise, mainstream medicine in the U.S. will sadly continue to lag behind Third World countries when it comes to understanding and controlling infectious diseases in the population.

The secret to sticking with your New Year's exercise resolution once and for all

Every new year, we hear about people resolving to exercise more.

If you don't exercise at all, that's an admirable goal. But if you do already exercise, popular culture—and even your own personality—may sabotage your resolution before January has even ended.

Many people get the idea that unless they adopt excessive exercise routines (what I call "excess-ercise")—like "pumping iron" for hours on end in a stinky, sweaty, germy gym… or running a marathon—they simply can't achieve fitness.

But that loony idea couldn't be further from the truth. As I've written before, when it comes to exercise, a little bit goes a long way.

In fact, a large new study of older women shows that simply *standing up*—rather than sitting all day—can increase your longevity by as much as 37 percent. (It doesn't get much simpler than that!)

But another new study found basic personality traits like introversion and extroversion can actually influence the effectiveness of different strategies for boosting physical activity.

So, let's take a closer look at each study, and then I'll share my tips for keeping your healthy—and *sensible*—New Year's exercise resolutions throughout 2021.

Get up, stand up…for your life

A new study from the University of California at San Diego found that light exercise, including just standing up, can benefit your health and substantially increase your life span.[1]

(To paraphrase Bob Marley and the Wailers: "Get up, stand up, for your *life*…"—or John Milton: "They also [are well] served, who only stand and wait…")

The research team monitored activity among nearly 6,000 women, ages 63 to 97, who participated in the

Women's Health Initiative (which I had helped start during the mid-1980s while at the National Institutes of Health). The women wore a high-tech accelerometer for seven days to precisely measure how much time they spent sitting, standing still, or moving around.

The researchers found that the women who spent the most time standing had a 37 percent lower risk of death compared to those who rarely stood. The most "stand-up" group put in almost 90 minutes per day on their feet. But benefits were seen with standing for as little as 30 minutes per day, too.

Plus, the health and longevity benefits were even greater when standing *and* moving around.

As this research shows, light, low-intensity physical activity, such as standing and walking, is important not only for your health—but in terms of feasibility and safety as you age, too.

Of course, the researchers also pointed out that many people over the age of 65 struggle to meet the guideline of 140 minutes of moderate activity *per week*. In fact, according to the researchers, many Americans spend *up to 11 hours sitting per day.*

So, how do we reverse that troubling statistic?

I believe the key to encouraging more people to incorporate physical activity into their daily lives boils down to acknowledging—and honoring—their individual personalities and preferences.

How you think can affect how you exercise

Ten years ago, I developed a personality-type index (based on "emotional types") to help predict what kind of mind-body disorders a person is more likely to experience, and the natural, mind-body therapies that are more likely to work best for them. (To learn more, check out my book, *Your Emotional Type.* You can find it in the "books" tab on my website: www.DrMicozzi.com.)

Based on that research, I've always thought that exercise preference and sticking with a fitness routine also very likely depend on personality type.

Scientists at the University of Pennsylvania School of Medicine (my alma mater) must have had similar thoughts. They decided to see whether attitudes and approaches to physical activity could be studied to match up to individual personality type.[2]

In a prior clinical trial on 602 overweight or obese adults, the researchers found that competition-based strategies to boost physical activity worked better than approaches based on collaboration, cooperation, and social support.

For the new trial, the researchers drilled down their analysis even further. They divided the 602 people into three major sub-groups: (1) extroverted and motivated, (2) less active and less social, and (3) least motivated and at-risk.

The researchers discovered that that competition-based strategies for boosting physical activity were most effective for extroverted and motivated participants (group 1)—but these people were less likely to remain active *after* the program ended. They needed exposure to other "competitors," and were less self-motivated.

Meanwhile, *both* competition and collaboration/social-support strategies worked for the less active and less social group—*and* they remained active afterwards. They tended to be more self-directed and less reliant on others.

Sadly, none of the strategies were effective for the group of least-motivated and at-risk participants.

The Penn researchers concluded that targeting exercise motivation approaches to the people who are most likely to benefit from them, based on personality types, yields the best results. Just like my own research targeting therapies based on personality types—*and treating each person as an individual.*

So while one person may prefer quiet, reflective solitary hikes in the forest, another person may prefer that their actions (exercise) accomplish something, like yardwork or housework. And others may require the "competitive" approach of trying to improve their time or distance while walking or jogging around a track with others participating or watching.

(Though I have to admit, the appeal of this approach has always puzzled me…it reminds me of a cartoon my daughter, who is a wildlife biologist, shared with me, titled "Jogging from the perspective of animals" by Jake Likes Onions. It shows a wolf and a bear watching a jogger going by in the distance. The wolf says: "What are you running from, apex predator? Are you chasing prey? You need to conserve energy." A bear sticks her head into the frame and says:, "The hell is that guy doing?" Wolf says, "I don't know. I don't understand." My caption: "Maybe he's running from the truth.")

The point is, you are more likely to stick with a fitness regimen that you enjoy, based on your own personality and preferences, rather that just adopting whatever sweat-inducing fad workout is trending this week. Which brings me to my final point…

How to exercise the right way this year

It's important to remember that science consistently demonstrates how *moderate* types and amounts of physical activity are associated with optimal health and longevity. In fact, study after study shows you only need a total of 140 minutes *per week*

(not per day) of moderate exercise.

Not to mention, "excess-ercise" is especially dangerous as you get older. As I often report, research shows that working out too long or too hard can take a cumulative toll on your joints, heart, nervous system, gastrointestinal tract, genitourinary system, and even your eyesight.

Instead, try a more sensible approach to your physical activity habits, like housework, yardwork, swimming, walking, and hiking. You can also incorporate mind-body exercises like yoga and tai chi.

And if you're one of the increasing number of people working at home these days, it's easy to incorporate a walk around the yard or the block into your daily routine. You might even consider setting an alarm to stand up and get moving for a few minutes every hour, to avoid sitting for too long.

Whichever exercises you choose, just remember to keep the type *and* amount moderate. This sensible approach is the best way to fulfill your New Year's resolution of safe and *healthy* exercise. IC

Post-holiday burnout got you down?

New research reveals quick and easy stress-soothing techniques you can do in the comfort (and safety) of your own home—no "spa day" required!

Perhaps the most widely recognized jazz composition of all time is "Take 5" by the Dave Brubeck Quartet. This 1959 masterpiece is a classic example of post-bebop "cool jazz," and is the best-selling jazz recording of all time.

Brubeck actually named the song "Take Five" because it was written in an unusual 5/4 meter (beat). It was one of the first jazz songs with a time signature other than the standard 4/4 meter or 3/4 waltz time. (One of Brubeck's collaborators had been exposed to the unusual meter while in Turkey, and Brubeck suggested following that beat for a new composition. Just close your eyes, listen to the opening chord, and imagine yourself in the ancient bazaar).

But this cool jazz signature piece is also relaxing, transporting, and transcendental—so it's no surprise that the term "take five" is now a standard dictionary definition for encouraging a short, relaxing break from working. (Those jazz cats were on to something!)

Now, science is also showing that there's something more to this expression. New research demonstrates that a few minutes is all it takes to help your body "recharge" and combat one of the deadliest health hazards we face in today's modern society…stress.

In a moment, I'll also tell you about some other recent research revealing a "secret" source of stress you're probably faced with every day without even realizing it. And I'll share some "Insider's" tips for the best places to quiet your mind.

But first, let's take a closer look at the new study showing just how quick and easy it can be to reduce stress…

All it takes is just 10 minutes for relaxation, health, and well-being

German scientists found subjects experienced significant physiological and psychological relaxation after only 10 minutes of resting or getting a massage. It was the first study to show that *short-term treatments* can strongly reduce stress by supporting relaxation through the parasympathetic nervous system (PNS)—which includes the vagus nerve on the back of the neck.

The PNS is responsible for relaxing us. It slows our heart rate and also helps with digestion. It brings us back to normal after the sympathetic nervous system's "fight-or-flight" response and protects our bodies against the effects of stress.

Massage, of course, is widely used for relaxation. But until this study, there wasn't any evidence that it directly affected the PNS, or whether it could help heal people with stress-related diseases.

Researchers gathered 60 healthy women and assigned them to three groups. One group got a 10-minute head and neck massage designed to directly stimulate the PNS by applying moderate pressure to the vagus nerve. The second group got a 10-minute neck and shoulder massage that didn't have any PNS stimulation. The third group simply sat quietly for 10 minutes, without any massages.

After the 10 minutes were over, the researchers measured all participants' relaxation by monitoring their heart rate variability (HRV), which indicates how efficiently the PNS responds to changes. The better the HRV, the more relaxation.

Participants were also asked to describe how relaxed, or how stressed, they felt. (As I periodically

report, studies show the best measure of stress, as it relates to health outcomes, is simply asking people how stressed they feel.)

All of the participants reported that they felt more relaxed and less stressed. And they all had significant improvements in HRV.

It was somewhat surprising that rest alone worked so well, although the physiological effect *was* more pronounced when participants received a massage. Of course, rest typically accompanies massage, so they may work together to relax us.

Interestingly, there was no difference between the two types of massage—meaning that the body doesn't need direct stimulation of the vagus nerve in order to relax.

This study is yet another indication that, as with most things in life, moderation is the key. You don't always need an hour-long massage or meditation session to relax. Just resting for 10 minutes can have big effects on your stress levels and overall health—and it's easy to do on a daily basis.

Of course, as I mentioned at the beginning of this article, there's one "secret" stressor that may be standing in the way of you getting the relaxation you need…

The sounds of silence

Research shows that noise is a psychological and physiological stressor. It's linked to a number of health conditions, including cancer, diabetes, heart attack, and stroke. It raises blood pressure and interferes with sleep quality.

And yet, in today's world, noise is all around us. We expect it in urban areas—there's a reason why New York is called the city that never sleeps. But even suburban areas have become polluted with noise-generating gas-powered lawn mowers, leaf blowers, and snow blowers—as I discussed in the March 2020 issue of *Insiders' Cures*.

In fact, noise pollution has become so pervasive that a study by the National Park Service and Colorado State University reports that even the remote areas of our country are no longer quiet places.[2]

This 2017 study found that human-created noise was double the amount of natural background sounds in a whopping *63 percent* of U.S. protected areas like national parks.

And as more and more people push into remote areas, they're bringing noise with them. In fact, the researchers found that human noise drowned out natural background noise *by 10 times* in 21 percent of our national parks.

This amount of noise disrupts wildlife and the entire ecological community. The auditory landscape is a key component of natural habitat, and noise interferes with animals listening for prey and predators, territorial alarms, group signaling, and mating calls.

Not to mention, human noise is rapidly becoming worse. U.S. National Parks hosted 328 million visitors during 2019, up nine million more than the year before.[3] In 2020, while coronavirus closures offered a temporary respite, people flocked to local parks and trails, raising concerns about many formerly quiet places in the midst of cities and suburbs. But, there are still plenty of places to seek out silence—*if* you know where to look…

My "Insider's" outside guide to finding some peace and quiet

A 2019 study found the quietest national parks and monuments in the U.S. were El Malpais National Monument in New Mexico, Great Sand Dunes National Park in Colorado, and Lassen Volcanic National Park in California.[4]

In Europe, designated quiet areas include Blessington Basin in Ireland, Lack Backsjon in Sweden, and Tondiloo Park in Estonia. But, shhh…don't spoil the fun! (I thought twice about even publishing this list.)

The good news is that a nonprofit group called Quiet Parks International is working to raise attention to our noisy remote areas. It's identified more than 250 sites worldwide that are already quiet or could easily become quiet.[5] And the group certified its first Wilderness Quiet Park on the Zabalo River in the Amazon Rainforest in Ecuador, and its first Urban Quiet Park—Yangmingshan National Park near Taipei, Taiwan.

Closer to home, Yale University reports that some national parks are reducing traffic noise by using shuttle services, and are even putting up "Quiet!" signs in popular remote areas.[6] Park rangers are surprised at how well the signs work, concluding that people are willing to trade off talking with their companions in exchange for communing with nature.

So the next time you're outside in a quiet place, make sure to keep it that way. Your physical, mental, and emotional health will all benefit—as will the health of the environment.

Of course, if you can't get out to a quiet place in Nature, one new study from the University of Exeter in the U.K. found that simply watching Nature onscreen can boost your well-being, too...

The benefits of experiencing Nature from home

The British researchers induced feelings of boredom in 96 adults by making them watch a video about a person's work at an office supply

company (perhaps like the proverbial "counting paper clips," which I saw all too often in the offices of government bureaucrats).[7]

The study participants then viewed an underwater coral reef either on a TV screen, using a virtual reality (VR) headset with 360-degree video, or using a VR headset with computer-generated, interactive graphics.

All three experiences countered negative feelings such as sadness—and significantly reduced the kind of boredom associated with being isolated indoors (like during coronavirus quarantines). Compared with the TV viewers, the VR viewers reported more increases in positive feelings, such as happiness, and strengthened connections to Nature.

Of course, the study was done in the U.K., where the BBC produces high-quality nature programming.

But if you're looking for some uplifting Nature program during the January gloom, I highly recommend a new documentary called "My Octopus Teacher" on Netflix. Filmmaker Craig Foster spent a year diving—without oxygen or a wetsuit—in a frigid underwater kelp forest near Cape Town, South Africa. One octopus began interacting with him on a regular basis.

The octopus represents 600 million years of adaptation in the oceans, while life on land has existed only half that time. Octopi have developed a demonstrably impressive consciousness and intelligence that's "alien" to anything we understand in terms of neuroscience. Not only did the octopus learn from Foster, but it taught him as well.

The story is awe-inspiring and remarkable. Just the kind of mental, emotional, and spiritual catharsis we need this winter—and well into the new year. After you watch it, put on some Brubeck, take 10 minutes to relax (play "Take Five" twice!), and reap the myriad health benefits. IC

This small fruit packs a big punch—nutritionally, scientifically, and traditionally

Apples have been symbolically associated with beginnings—in the alphabet, for example, and in the Garden of Eden. So why not make them a healthy part of your new year?

After all, there's a reason why the saying "an apple a day keeps the doctor away" has been in use for hundreds of years. Indeed, research shows that apples have a bushel of health benefits.

First of all, the pectin content in apples is an excellent source of fiber. So it's no surprise that, like other fibrous foods, apples help with digestion and support the "good" bacteria (probiotics) in your gut.

Plus, apples are loaded with polyphenols. The combination of these natural antioxidant and anti-inflammatory compounds with pectin has been shown to help prevent cancer (especially colon and breast cancer), cardiovascular disease (especially "bad" LDL cholesterol), diabetes, and Alzheimer's disease and cognitive impairment.[1]

Apples also help balance allergic and immune reactions like asthma by modulating the release of histamine (creating a natural "antihistamine" without any of the side effects of allergy drugs). And they can reduce the severity and duration of migraine headaches.

If that weren't enough, the malic acid in apples (and apple cider) is good for the musculoskeletal system, which can be helpful for fibromyalgia and chronic fatigue. And a new study shows that apples can even help reduce menopause symptoms—most likely due to the polyphenols that play an important role in estrogen production and metabolism.[2]

But apples can have more than just a physical health effect. Throughout the centuries, they've also been key components in spiritual, mental, and emotional health traditions and lore.

From Rosh Hashana to Rip Van Winkle

For the Jewish New Year (Rosh Hashana), one of the traditional foods is an apple dipped in honey. The apple symbolizes the Garden of Eden, which the Kabbalah refers to as "the holy apple orchard." And the honey symbolizes the desire for a sweet year.

Apples are rich in secular tradition as well. In one popular legend, falling asleep in an apple orchard could make you wake up a year later. And if that reminds you of *Rip Van Winkle,* the short story by Washington Irving published in 1819, that's not a coincidence.

Rip Van Winkle is a Dutch-American villager in 17th century colonial New York who meets mysterious Dutchmen (rumored to be ghosts of the crew of Henry Hudson's ship the *Half Moon*), imbibes their liquor, and falls asleep in the Catskill

Mountains—only to awaken 20 years later. The story doesn't specify whether Mr. Van Winkle fell asleep in an apple orchard, but the mysterious liquor was probably apple cider.

And then there's the Halloween tradition of bobbing for apples, which is related to the idea that both apples and water hold links to other worlds.

In science, there's the famous story of Isaac Newton falling asleep under an apple tree and being hit on the head by one of the fruits. Newton was a student at Cambridge University at the time, and had gone home to his family's rural Lincolnshire farm to escape the Great Plague of 1665-66 that was ravaging the cities of England.

Of course, Newton's studies (and his apple experience) led to the development of classical mechanics, or Newtonian physics. But Einstein's new version of quantum physics produces a modernized Rip Wan Winkle story, in which a person traveling at near light speed would experience only the passage of a few years, yet would return to find centuries had passed on Earth.

Closer to home, in 1623, the first apple orchard was planted with apple seeds from England, on Beacon Hill in Boston. George Washington and Thomas Jefferson both had orchards on their plantations in Virginia. And in the early 1800s, the legend of Johnny Appleseed was based on John Chapman, who planted apple orchards on what was then the western frontier. In fact, the presence of an apple orchard was an important sign that the land was being settled.

So my point is this: What other fruit has so much scientific evidence and traditional lore? It's no wonder apples are so popular…and that "an apple a day" is one of the easiest, healthiest, and tastiest New Year's resolutions you can make.

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NEWS BRIEF

This standout supplement works wonders for your waistline—and your heart

Mainstream medicine is always looking for that "magic bullet" drug that can cure whatever ails you. Of course, those of us who understand how natural science *really* works know this is a ridiculous (and dangerous) fantasy.

But there *are* a variety of natural compounds that *can* lower your risk of multiple diseases. Take vitamin D, for example, which can help prevent everything from diabetes to depression. Or vitamin C's effects on everything from cancer to colds (as discussed on page 2).

And now, exciting new research shows that an amino acid called l-carnitine can lower blood pressure *and* whittle your waist at the same time.[1] And since obesity and high blood pressure are key risk factors for cardiovascular disease, that means l-carnitine can be a powerful protector against the world's number one killer.

Protect your metabolic health with one simple supplement

This new study was said to be the first meta-analysis investigating the effects of l-carnitine supplementation on risk factors for metabolic syndrome, including blood pressure, waist circumference, blood sugar, cholesterol, and triglycerides.

Researchers analyzed nine controlled clinical trials involving 508 people with a range of medical conditions, including diabetes and metabolic syndrome. Most of the studies lasted for 12 weeks, and the participants took an average of 2,000 mg of l-carnitine a day.

Two of the trials, with a total of 155 participants, measured waist circumference. And the participants who took l-carnitine had an impressive 3/4-inch reduction in waist size at the end of the studies.

There were also two trials, with a total of 66 participants, that measured blood pressure. Those who took l-carnitine had a significant decrease of 7.4 mmHg in systolic blood pressure (the top number).

And in four of the studies, with a total of 321 participants, the l-carnitine group's fasting blood sugar significantly dropped by 11 mg/dL. But because these studies didn't compare the l-carnitine groups' blood sugar measurements to the placebo groups, it's difficult to say whether l-carnitine alone accounted for the blood sugar drop. (Sadly, the researchers didn't measure the participants' A1C levels, which are a better indicator of metabolic syndrome and diabetes.)

There was no change in cholesterol levels in any of the studies (which, as you know, isn't an issue in any case). And there was no evidence that l-carnitine lowered triglyceride levels.

As I mentioned earlier, l-carnitine is an amino acid. It plays a key role in transporting fatty acids into the mitochondria that produce energy and hydration for all cells. Simply put: The better the mitochondria function, the better your body functions—and fights off disease.

L-carnitine is abundant in dairy, fish, and meat—which I always encourage you to consume as part of a healthy, balanced diet. (Yet another reason not to fall victim to popular overly restrictive diets, like vegetarianism. As this study again shows, it's a dangerous myth that consuming meat is somehow bad for your heart or metabolic health.)

As a dietary supplement, I recommend 500 mg per day of l-carnitine.

There's just one caveat: Avoid popular supplements with l-carnitine that are promoted for "muscle building," "fat burning," and/or "weight loss." In the right amounts, l-carnitine provides needed metabolic support, but this is definitely one supplement where you never want to take too much.

Research shows that taking more than 5,000 mg of l-carnitine a day can cause serious side effects like gastrointestinal problems and atherosclerosis. So it's best to rely on getting your l-carnitine mainly from your diet—with a *small* amount of supplementation.