



# All SYSTEMS GO

Perk Musacchio and David Goodale's tips to boost your immune system

## raising great kids

By resident education specialist  
Perk Musacchio and David Goodale

**Living a healthy lifestyle is like building a pyramid. You have to lay a strong foundation that includes good nutrition, adequate sleep, movement and sensory experiences, and a secure and stress-free environment. Doing this will allow those chemical messengers called neurotransmitters to remain in a proper balance in the brain and gut. When people experience chronic stress or trauma, there can be a rise in the "stress hormone" known as cortisol. Because of our natural "flight, fight, or freeze" response that occurs in the amygdala, or the "911" part of our brain, we can experience an increase in heart rate and blood pressure. Living in such a chronic state can cause an imbalance of neurotransmitters and makes us susceptible to physical and/or mental illnesses. It's always important to build and maintain a healthy immune system, but with the flu season quickly approaching, now is the time to ward off any nasty germs and viruses.**

Believe it or not, our immune system has evolved over millions of years to successfully defend our cells against "invaders," such as bacteria and viruses. However, our lifestyles have changed since the days when we were "hunters and gatherers." We no longer spend most of our time outdoors, moving about as we hunt, gather, and then eat fresh, unprocessed food. Instead, we live a more sedentary, indoors, and "grab-and-go-meals" lifestyle. The good news is there are protective things we can do to build a healthy gut and boost our immune system so that it functions the way it's meant to.

### FOOD:

You are what you eat. Diet actually contributes about 75 percent to a healthy immune system, and the rest is vitamins, sleep, and exercise. However, nothing can overcome a diet that is based on sugars and carbohydrates. Over the years, our food has changed dramatically. Hunter-gatherers did not have processed foods that are high in carbohydrates (instant sugar) such as pasta, breads, crackers, and chips that make up the current "white food diet."

Many people, especially children, don't eat enough important nutrients found primarily in fruits and vegetables. A study by the National Cancer Institute looked at 16,000 people and could not find one person with a truly healthy diet. Most people were deficient in 11 out of 14 nutritional categories. These deficiencies become more serious when you consider that our nutritional needs increase under certain circumstances such as pregnancy, stress, injuries, colds, flu, COVID-19, surgeries, chronic illness, and alcohol/drug/tobacco. We're experiencing an epidemic of obesity, poor immune systems, and chronic health conditions, partly because cancers, viruses and other "invaders" feed off of sugars. For example, diabetic patients have compromised and suboptimal immune systems. The A1C blood level that is used to track diabetes is a three-month average of blood-sugar values. One week of avoiding sugar and carbs is a great start, but it will have little impact on diabetes as measured by A1C blood levels. Long-term changes to diet can have a dramatic and positive effect on reducing those levels. The standard American diet (SAD) is one reason that we are seeing such a dramatic increase in chronic illnesses and other "nutritional deficit disorders" over the last 60 years.

The challenge for many of us is to move the major source of our body's energy from a sugar/carb-based diet to a ketogenic-based diet. Hunger actually comes from the ups and downs of our blood sugar levels and causes us to feel "hangry" (hungry-angry) or lethargic when our blood sugars drop. To reverse this trend, we can increase our intake of ketones, which will help us feel full and won't cause hunger when they change in the blood. We can also eat more protein and healthy fats along with fresh, unprocessed foods.

A great source of ketones is coconut oil, which is filled with medium chain saturated fatty acids (C6-C12 carbon chain length). These are very healthy saturated fats because they rapidly diffuse out of the blood unlike the unhealthy long chain fatty acids

(C14-C20 carbon chain length) that accumulate in blood and clog arteries. Another even better source of ketones is MCT Oil (medium chain triglycerides), which can be found online or in your grocery store. A tablespoon serving of MCT oil will suppress hunger for two to three hours and can be consumed by itself or added to smoothies, coffee, salads, or spooned over vegetables.

Finally, how often should we eat? Babies tend to feed on demand, or about every three to four hours. Children and young adults typically consume at least three square meals a day and may require a healthy snack every two to three hours just to keep energy levels up, maintain blood sugar levels, and avoid the "hangries."

Unfortunately as we age, our body metabolism drops. We need to decrease the number and size of our meals, while increasing our time exercising and stretching. Since both authors are in this group, let us share what we have found to be helpful! Consider having the first meal of the day after your morning walk and after 11 am, which is possible when adding some MCT or coconut oil to your morning coffee or tea. Around noon, have a small, high protein/healthy fat meal to tide you over to supper in the evening. If you need a snack in between, consider a small protein snack or some fruits or vegetables. If we avoid carbohydrate foods, we'll have less hunger and more energy. Generally, we should avoid eating after 7 pm.

### WATER:

Drink plenty of water in the morning and early afternoon until about 4 pm to 5 pm, so you're not over-hydrated when you go to bed.

### EXERCISE:

Before eating in the morning, start your day with at least a 20- to 30-minute walk, although 45 to 60 minutes would be ideal. The goal is to burn off your blood sugars first thing in the morning and move your body to ketone energy, not sugar-based energy. Your body will now start burning body fat as needed for energy throughout the morning.

### VITAMINS:

There has been much research that supports making sure you are getting enough vitamins C, D, and zinc to build a strong immune system against flu and viruses. Interestingly, there are several factors that can affect our levels of vitamin D, such as:

**Geographic location** – Living above the 37-degree latitude may result in a deficiency due to our skin not being able to produce enough vitamin D from the sun, especially during the winter months. Most people in Chester County are probably naturally deficient.

**Age** – As we age, our ability to produce vitamin D decreases. If you are over 65, you will generate only a quarter as much vitamin D as you did in your 20s.

**Skin color** – People with darker skin types tend to have lower levels of vitamin D than lighter skinned people – sometimes half as much.

**Weight/BMI** – People with a BMI over 30 tend to have lower levels of vitamin D in their blood. This is because the vitamin gets stored in fat cells rather than being used.

Given these factors for the potential to be deficient in vitamin D or any other immunity building vitamin/mineral, it might be a good idea to talk with your physician about the merits of checking your blood levels, adding vitamin D-rich foods to your diet and possibly taking supplements, if needed.

**Food** – Consume vitamin D-rich foods such as mushrooms, egg yolks, liver, and fatty fish like salmon and sardines.

**Supplement** – Vitamin D3 is the oral vitamin form that most effectively raises vitamin D levels in the body. If your physician agrees, the usual daily supplement of vitamin D3 is 2000- 5000 IU. It comes in pill, sublingual tablet, liquid and spray forms.

### VITAMIN N:

In order to keep producing vitamin D3 and serotonin (the mood stabilizer neurotransmitter), make sure to spend plenty of time in nature. Walking, hiking, swimming, cycling, and meditating outside in the sun and fresh air can help one manage stress and does a body and mind good.

### LAUGHTER:

Laughing triggers the release of endorphins, the body's natural feel-good chemicals. Endorphins promote an overall sense of well-being and can even temporarily relieve pain. In fact, a gentleman by the name of Norman Cousins is said to have cured himself of a fatal disease by watching the comedy of the Marx Brothers on television.

In a world where we haven't had much control, it's empowering to know that there are things we *can* do to build our immune systems and live a healthier life. Cheers to staying well.

For more information about building a healthy immune system through the foods you eat, consider reading Chapter 4 in *No Manual, No Problem: Strategies and Interventions to Help Your Child Thrive in Today's World* and *The Complete Book of Ketones* by Dr. Mary T Newport.

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