

# Our Most Important Defense Against COVID-19: Finding Hope Through Scientific Evidence

[Jessica](#) April 2, 2020

## Our Most Important Defense Against COVID-19: Finding Hope Through Scientific Evidence (Part 1)

*Commentary by T. Colin Campbell, PhD*

Unless any of us have been living under a rock, we all know the formidable price we are paying for the COVID-19 pandemic and its social and economic consequences. Although details are still evolving, we can agree that this is a dark time. But, as a researcher with a career spanning 65 years, I have some thoughts that help me to cope and that I'd love to share with you. Let's begin by accepting the social distance advisories provided for us, then spend some time exploring something new.

**Here is the hopeful – even revolutionary – idea. People can defend themselves against the worst effects of the COVID-19 infection, and help flatten the curve of hospitalizations, by strengthening their immune systems through their food choices.**

It is well-known that people over 60 years of age with pre-existing disease conditions are most vulnerable to COVID-19. And it is also known that most of these diseases are the result of poor nutrition.

We find ourselves in this difficult place because for years industry, government, and academia have suppressed the most important truth of health, which is that there is credible evidence that a diet of whole, plant-based foods (vegetables, fruits, whole grain cereals, legumes and nuts) can

create more health than all the pills and procedures combined. The supporting evidence for this bold statement refers to the ability of this diet to not only prevent so-called chronic degenerative diseases (cardiovascular diseases, diabetes, stroke, cancer, etc.) but also to treat many of these same diseases, a response that can be seen in days.<sup>[1]</sup>

But the story gets even more compelling, especially concerning our current crisis. In my opinion, good evidence exists to show that the beneficial effects of a whole food, plant-based (WFPB) diet also applies to viral diseases like COVID-19. I am referring to 1) research findings in my lab in the 1970s through the 1990s, 2) supplementary evidence from a comprehensive study of diet, lifestyle and disease, twice done, in a human population in rural China during the 1980s, and 3) specific evidence from researchers on diet and viral infection.<sup>[2-4]</sup>

## **FROM THE LAB TO THE COUNTRYSIDE OF CHINA**

In our experimental animal studies, published extensively in peer-reviewed journals and mostly funded by NIH, animal-based protein fed at modest levels of intake exhibited a remarkable ability to promote experimental cancer development. Cancer development could be alternately turned on and off by increasing, then decreasing animal protein, or by replacing it with plant protein. This effect was seen in other research in our laboratory, where we observed multiple explanatory mechanisms, operating in symphony, coordinating the activity of multiple nutrients and benefitting multiple disease outcomes.

I then turned my attention to China to confirm this lab-based connection of animal protein to cancer and possibly other chronic degenerative conditions. In a large human trial in the early 1980s, our team at Cornell and my colleagues in China and at Oxford University, collected a huge amount of clinical and lifestyle data, as well as about four dozen disease mortality rates. This study built on our laboratory research, and was unusually

comprehensive, including 367 items of information. Among the nutritional and clinical information, it also included indicators of three viral diseases and their correlates: hepatitis B virus (HBV) vs. primary liver cancer, Epstein-Barr virus vs. esophageal and nasopharyngeal cancers and papilloma and Herpes viruses vs. cervical cancer.<sup>[5]</sup>

## **FROM CHRONIC DISEASE TO VIRAL INFECTION**

Concerning this discussion about diet and viral diseases, we studied HBV vs. liver cancer in the most detail, both in our human survey in China and in our lab, where we used mice carrying the gene for HBV that causes liver cancer like that in humans. At that time, I already was aware of the remarkable promoting effect of dietary animal protein on liver cancer initiated by a chemical carcinogen and wondered whether the same animal protein effect might occur for liver cancer initiated by hepatitis B virus.

The results for the viral model were similarly remarkable as for the chemical carcinogen model. Increased consumption of animal protein substantially increased development of liver cancer begun by the virus, along with biochemical lab markers that helped to explain and confirm the effect.<sup>[6-8]</sup> This also was consistent with viral and nutrition-related associations with human liver cancer in rural China<sup>[9]</sup> (and Taiwan<sup>[10]</sup> in a follow-up study).

A plant-based diet suppressed liver cancers caused by HBV infection, which suggested to me that there was something more to the story of plant-based nutrition than simply a connection to chronic degenerative diseases. In addition to inhibiting liver cancer started by the hepatitis B virus, the same nutrition also likely modifies the viral effect by inactivating the virus itself through increased production of antibody; otherwise, it would continually initiate new cancer development.

And indeed, we found further striking evidence for this viral effect in a follow-up study in China done six years after the initial China study. This

study again collected data from the same villages and counties but added some additional counties in mainland China and 32 villages in Taiwan. These data showed, in multiple ways, that greater plant food consumption statistically associates with a higher prevalence of HBV antibody, indicating immunity, and lower prevalence of HBV antigen, indicating active virus,<sup>[10]</sup> thus providing increased immunity toward that virus. Higher consumption of thiamine, plant protein, dietary fiber, and polyunsaturated fatty acids as well as blood levels of antioxidants (all from plant-based food) was associated with lower blood levels of active virus (antigen) and higher levels of inactive virus (inactive virus, immunity)—all statistically significant. The reverse was true for indicators of animal-based food consumption. The most impressive observation was the fact that the amount of animal food consumption was quite low by U.S. standards, while still associating with a higher prevalence of active virus (antigen).

A call for studies on the possibility of creating viral immunity through a traditional pharmaceutical approach just appeared in the New York Times as I was writing this.<sup>[11]</sup> However, collaborating with our Chinese and Oxford colleagues, we obtained evidence over three decades ago showing how viral immunity was enhanced not by drug means but by nutritional means, namely, higher consumption of plant-based foods!

## **WHAT DOES THIS MEAN FOR YOU?**

In short, a WFPB diet can 1) prevent, perhaps even reverse, the chronic degenerative diseases which make older individuals more susceptible to COVID-19 while 2) simultaneously increasing immunity by inactivating the COVID-19 itself. Consuming this diet does not mean we won't get infected by the virus, but it should increase our defenses to avoid the worst effects from the infection, and in so doing, help to flatten the curve of hospitalizations.

This is a powerful idea, and one especially relevant today. Mortality data

emerging from Italy<sup>[12]</sup> and now New York City, show that 99% and 95% of the people (mostly older) who have died from COVID-19 in Italy and NYC, respectively, suffered from pre-existing medical conditions, mostly arising from a lifetime of bad nutrition.

**In thinking about science, I always come back to my more intuitive understanding of biology.**

The immune strengthening effects of a plant-based diet is not surprising when you see nutrition through a wholistic rather than a reductionist perspective. Consuming the right diet optimizes our health, period. Nature would not have created a nutritional effect for chronic degenerative diseases opposite that for viral diseases.<sup>[13]</sup>

So, if you have time, and as you are house bound awaiting the passing of the COVID-19 threat, spend some of this time learning about this remarkable nutrition effect. There is no greater form of education than experience, so I also suggest you consider going on a plant-based diet, if only for 10 days, to experience its health benefits. There are food options available that make this easier than it used to be, and of course, if you are willing to cook, there are many recipes available in cookbooks and on the internet.

Normally, I would be submitting this rather novel idea of connecting nutrition to viral infections for professional publication, as I have in the past. But we don't have time and I therefore hope, if your time permits, that you might wish to give it a try.

**Take steps today to protect yourself from the worst effects of COVID-19 and help keep the curve of hospitalizations flattened so we can restart the economy. [Sign up today](#) to find out more about the Global 10-Day Jumpstart – an online program offering seminars, daily emails, cooking videos, interactive discussions with medical doctors and more.**



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### **About the Author**

T. Colin Campbell, PhD, co-author of the New York Times bestselling book *The China Study*, is a bio/nutritional researcher with over 60 years of experience in the field of nutritional science. Dr. Campbell is the Jacob Gould Schurman Professor Emeritus of Nutritional Biochemistry at Cornell University, and is the founder of the T. Colin Campbell Center for Nutrition Studies and the online Plant-Based Nutrition Certificate in partnership with eCornell.

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## References

1. Campbell, T. C. & Campbell, T. M. I. *The China Study, startling implications for diet, weight loss and long-term health. Expanded Version, pp. 290-291*  
451 (BenBella Books, Inc., 2005).
2. Muller, L., Meyer, M., Bauer, R. N., Zhou, H.-X., Zhang, H., Jones, S. *et al.* Effect of broccoli sprouts and live attenuated influenza virus on peripheral blood natural killer cells: a randomized, double blind study. *PlosOne* (2016).
3. McAnulty, L. S., Nieman, D. C., Dumke, C. L., Shooter, D. A., Henson, A. C., Milne, G. *et al.* Effect of blueberry ingestion on natural killer cell counts, oxidative stress, and inflammation prior to and after 2.5 H of running. *Appl. Physiol. Nutr. Metab.* **36**, 976-984 (2011).
4. Majdalawieh, A. F. & Carr, R. I. In vitro investigation of the potential immunomodulatory and anti-cancer activities of black pepper (*Piper nigrum*) and cardamom (*Elettaria cardamomum*). *J. Med Food* **13**, 371-381 (2010).
5. Chen, J., Campbell, T. C., Li, J. & Peto, R. *Diet, life-style and mortality in China. A study of the characteristics of 65 Chinese counties.* (Oxford University Press; Cornell University Press; People's Medical Publishing House, 1990).
6. Cheng, Z., Hu, J., King, J., Jay, G. & Campbell, T. C. Inhibition of hepatocellular carcinoma development in hepatitis B virus transfected mice by low dietary casein. *Hepatology* **26**, 1351-1354 (1997).
7. Hu, J., Chisari, F. V. & Campbell, T. C. Modulating effect of dietary protein on transgene expression in hepatitis B virus (HBV) transgenic mice. *Cancer Research* **35**, 104Abs (1994).
8. Hu, J., Cheng, Z., Chisari, F. V., Vu, T. H., Hoffman, A. R. & Campbell, T. C. Repression of hepatitis B virus (HBV) transgene and HBV-induced liver injury by low protein diet. *Oncogene* **15**, 2795-2801 (1997).
9. Campbell, T. C., Chen, J., Liu, C., Li, J. & Parpia, B. Non-association of aflatoxin with primary liver cancer in a cross-sectional ecologic survey

- in the People's Republic of China. *Cancer Res.* **50**, 6882-6893 (1990).
10. Chen, J., Campbell, T. C., Li, B. & Peto, R. *Diet, life-style and mortality in mainland China and Taiwan. A study of the characteristics of 85 Chinese counties.* (Harvard University, 1998).
  11. Mandavilli, A. [Can you become immune to the Coronavirus?](#) *New York Times* (2020).
  12. Salo, J. [Over 99% of coronavirus patients in Italy who die had other health problems.](#) *New York Post* Mar 18, 2020.
  13. Campbell, T. C. Nutrition renaissance and public health policy. *J. Nutr. Biology* **3**, 124-138, doi:DOI:10.1080/01635581.2017.1339094 (2017) (2017).

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