

## Health, Lifestyles and Severe COVID-19

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*By Gloria A. Coe*



AFSM Member Jose Ramiro Cruz published an article in September 2020<sup>1</sup> on the interactions between COVID-19 and the body's defense system with a focus on prevention and reducing severe COVID. Jose Ramiro has degrees from Harvard University in both Tropical Public Health and Virology and Immunology, and he worked for PAHO in Laboratory and Blood Services from 1994-2011.

His article details the multiple organs and cells in the respiratory and immune systems explaining how they work individually and in unison to defend the body against disease. It discusses the interactions of SARS-COVID-19 with the respiratory defense system, specifically focusing on the threat of the virus and the ability of the body to defend itself. After 11 pages of analysis, the next to last sentence of his article reads: *“Until an effective and safe vaccine is found, preventive measures should continue to focus on human behavior.”*

In private correspondence with Jose Ramiro, he responded unambiguously to the question “What would be the key message of your article for those over 65 years?” He replied saying:

*“I believe it is important that people understand that the severity of COVID-19 is not directly due to the etiologic agent, SARS-CoV-2, but to host factors that may cause chronic inflammation, such as obesity, smoking, exposure to polluted air, or to immune deficiencies. The implications for personal behavior and measures to prevent COVID-19 have to do with social distancing, mask wearing, and getting vaccinated. . . To prevent severe disease, it is important to be fit, which means adequate physical exercise and diet, and good oral health.”*

Also, in 2020 a fascinating worldwide observational study<sup>2</sup> was undertaken to, among other objectives, assess the cumulative effect of lifestyles on COVID-19 mortality. The study analyzed data from 186 countries and divided them according to the number of

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<sup>1</sup> Jose Ramiro Cruz. Interacciones entre SARS-CoV-2 y el sistema de defensas del aparato respiratorio: consideraciones para la prevención y el manejo de las infecciones. Ciencia, Tecnología y Salud; 7(3) 2020, 113-133. <https://revistas.usac.edu.gt/index.php/cytes/article/view/974>

<sup>2</sup> Wang J, Sato T, Sakuraba A. Worldwide association of lifestyle-related factors and COVID-19 mortality. Annals of Medicine 2021, 53; 1:1528-1533: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8405104/>

lifestyle-related risk factors in each country; that is countries with 0-1, 2-3, 4-5, and 6-7 risk factors. In essence, the study showed that those countries with “more risk factors demonstrated greater mortality due to COVID-19.”

This article briefly reviews the latest information of five lifestyle risk factors in relation to COVID-19.

**SMOKING TOBACCO:**<sup>3</sup> A 2020 UK study of 421,469 participants sends a clear message to smokers, as summarized by the lead researcher:

*“Our results strongly suggest that smoking is related to your risk of getting severe COVID, and just as smoking affects your risk of heart disease, different cancers, and all those other conditions we know smoking is linked to, it appears that it’s the same for COVID. So now might be as good a time as any to quit cigarettes and quit smoking.”*

**ORAL HEALTH:**<sup>4</sup> In general, good oral health practices include brushing and flossing our teeth each day, regular dental visits, and frequently use antimicrobial mouth rinses, especially in patients with heart illnesses. An 8 October 2021 US News<sup>5</sup> report lead sentence reads: *“Good dental hygiene may well be a weapon against severe COVID-19: A new study shows that taking care of your teeth and gums may lower your risk of serious infection, especially if you have heart disease.”* The researchers studied 86 Egyptian patients with heart disease who had a positive COVID-19 test. Their findings were that there is an association between poor oral health and more severe COVID-19 and longer recovery from the disease.

**BODY WEIGHT:**<sup>6</sup> Individuals with good or normal weight are more likely to have less pain in their muscles and joints, better blood pressure and heart circulatory system. Being overweight or obese puts one at greater risk of diabetes; heart disease; osteoarthritis of the hips, knees and ankles; and many other medical problems including COVID-19. The severity of COVID-19 increases as one’s body mass index (BMI)

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<sup>3</sup> Medical Research News, Disease/Infection News. Study shows link between smoking and COVID-19 severity, death, 2021: <https://www.news-medical.net/news/20210928/Study-shows-link-between-smoking-and-COVID-19-severity-death.aspx>. Clift, A.K., et al. (2021) Smoking and COVID-19 outcomes: an observational and Mendelian randomisation study using the UK Biobank cohort. Thorax. doi.org/10.1136/thoraxjnl-2021-217080..

<sup>4</sup> American College of Cardiology News Release, 7 Oct 2021: Poor oral health may impact COVID-19 severity, especially for cardiac patients. <https://www.acc.org/about-acc/press-releases/2021/10/07/12/57/poor-oral-health-may-impact-covid-19-severity-especially-for-cardiac-patients>

<sup>5</sup> Preidt R. Brush & Floss: Better Oral health Keeps Severe COVID at Bay. US News. Oct 8, 2021: <https://www.usnews.com/news/health-news/articles/2021-10-08/brush-floss-better-oral-health-keeps-severe-covid-at-bay>

<sup>6</sup> Centers for Disease Control and Prevention. Obesity Worsens Outcomes from COVID-19. <https://www.cdc.gov/obesity/data/obesity-and-covid-19.html>

increases. People who are obese are at three times higher risk of hospitalization, admittance to the intensive care unit (ICU), invasive ventilation, and death. On 27 April 2021 the section “News” from the website of the CDC states: “The greatest risk of developing severe COVID-19 . . . was in patients with the highest BMI scores.” Key to controlling our body weight is exercise and a healthy diet.

**EXERCISE:**<sup>7</sup> Physical activity and exercise are critically important across our lifespan. Numerous body systems work better when we are consistently physically active. The importance of exercise during the time of COVID-19 is particularly important as measured in a 2021 article in The British Journal of Sport Medicine. In essence, the study measured admission to the ICU, mortality data, and physical activity based on self-reporting of the COVID-19 patients indicating if they:



- were consistently inactive, defined as less than 10 minutes/week
- performed some activity - 11-149 minutes/week, or
- were consistently meeting physical activity guidelines - 150+ minutes/week.

The study results were clear.

“Patients with COVID-19 who were consistently inactive had a greater risk of hospitalization, admission to the ICU, and death . . . than patients who were consistently meeting physical activity guidelines.”

Additional research has shown that the association between physically inactive individuals and poor COVID-19 outcomes were robust. Moreover, the harmful effects of COVID-19 were higher among inactive individuals than those with obesity, diabetes, hypertension, coronary vascular disease, and cancer.<sup>8</sup> **A HEALTHY DIET:**<sup>9</sup> The lead sentence of the 10 September 2021 issue of the Harvard Gazette reads: “*Study links healthy plant-based foods with lower risks of getting COVID-19 and of having severe disease after infection.*”<sup>10</sup>

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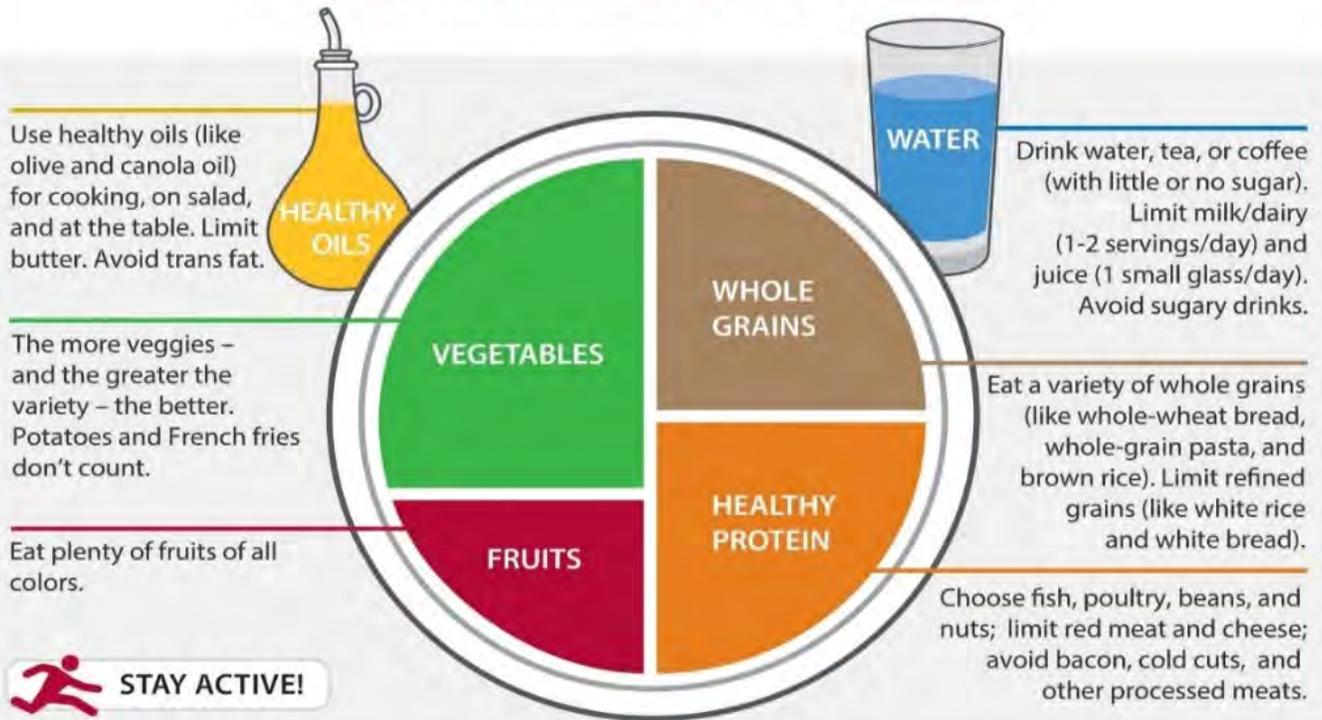
<sup>7</sup> Sallis R, Rohm Young D, Tartof SY, Sallis JF, et al. Physical inactivity is associated with a higher risk for severe COVID-19 Outcomes: a study in 48,440 adult patients. British Journal of Sport Medicine; 2021: 55: 1099-1105. <https://bjsm.bmj.com/content/bjsports/55/19/1099.full.pdf>.

<sup>8</sup> Despres J-P. Severe COVID-19 outcomes – the role of physical activity. Nature Reviews / Endocrinology, 2021:17, August: 451-452. <https://www.nature.com/articles/s41574-021-00521-1>

<sup>9</sup> Hampton T. Diet may affect risk and severity of COVID-19. Harvard Gazette, Health & Medicine. September 10, 2021. <https://news.harvard.edu/gazette/story/2021/09/diet-could-affect-coronavirus-risk-according-to-mgh-study/>.

<sup>10</sup> Please also see AFSM Newsletter, June 2021, Vol XXXII No. 2: Let’s Eat 30 Different Plants Each Week.

# HEALTHY EATING PLATE



 **STAY ACTIVE!**

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The Nutrition Source  
[www.hsph.harvard.edu/nutritionsource](http://www.hsph.harvard.edu/nutritionsource)

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The objective of this study, published by the British Medical Journal Gut,<sup>11</sup> was “to investigate the association of diet quality with risk and severity of COVID-19. . .”. The researchers used data from 592,571 participants and documented 31,815 cases. Diets with a healthy pattern a higher composition of salad, oily fish, cheese, fiber-rich cereals, and lower consumption of alcohol, fast food, and processed meats. While diets with an unhealthy pattern had lower intakes of fruits and vegetables and higher intakes of crisps, snacks, sweets, and processed meats. The findings indicated that individuals with low-quality diets were associated with a higher risk and severity of COVID-19.

<sup>11</sup> Merino J, Joshi AD, Nguyen LH, et al. Diet quality and risk and severity of COVID-19: a prospective cohort study: <https://gut.bmj.com/content/gutjnl/early/2021/09/06/gutjnl-2021-325353.full.pdf>. Mazidii M, Leming E, Merino J. Impact of COVID-19 on health behaviors and body weight: a prospective observational study in a cohort of 1.1 million UK and US individuals. Research Square, 2021: <https://gut.bmj.com/content/70/11/2096>

The Harvard School of Public Health promotes the Healthy Eating Plate<sup>12</sup>, recommending that fruits and vegetables fill half the plate.

**A Call to Action for Healthy Lifestyles:** The previously mentioned study assessing the cumulative effect of healthy lifestyles and COVID-19<sup>13</sup> mortality suggested each lifestyle-related factor has a different degree of influence on COVID-19 risk.

*“Furthermore, countries with higher burden of lifestyle-related factors suffered greater casualties due to COVID-19. The burden of lifestyle-related factors reflects the lifetime cumulative effects of unhealthy lifestyles,”*

Recognizing the cumulative benefits of healthy lifestyles, the researchers issued the following Call to Action:

*“Global and governmental leaders need to urgently work on improving the behaviour and lifestyle of the citizens and promote healthy lifestyles because the pandemic is far from over and may last for a few years”* (emphasis added).

It is fascinating to reaffirm and act on an insight stated by Hippocrates, the Father of Western Medicine, more than 2400 years ago:

*“Without exercise, a good diet alone is not sufficient and eventually medical treatment will be needed.”* (460-370 BC)

**Let Us Agree - Adopting Healthy Lifestyles Is Important. We urge you to embrace these healthy lifestyles slowly and surely, one by one, recognizing that the cumulative effect they have on your health has many benefits, adding healthy years to your lives and preventing and reducing severe COVID-19. **N****

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12 Harvard T. H. Chan School of Public Health, The Nutrition Source, Healthy Eating Plate: <https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/>

13 Please see reference 2.