The Delicious & Nutritious COVID-19 Rx:

What to Eat with All The Restaurants Closed?

By Dr. Jim Painter, PhD, RDN

While quarantined at home, self-imposed or mandated, enjoy the time with family by preparing and sharing delicious meals together. The recommendations to date to reduce risk for COVID-19 have mainly focused on public health measures such as washing hands and social distancing to limit the spread of disease (1). Statistics show that most of the deaths from COVID-19 are occurring among the elderly and ill with weaker immune systems. To date there is no drug to treat COVID-19, and most medical advice encourages people who are sick to stay at home, rest, hydrate, etc, because the body's own immune system has to fight the virus. In the coming days of uncertainty, focusing on food to building up your immune system to fight the infection is of utmost importance. Keep a positive outlook, make the most of the time at home with family. Here are some strategies to help you do all that:

1. **Limit consumption of highly processed foods** that contain more added sugars, artificial flavors and less nutrients and fiber. Although it seems that all diet doctors disagree on everything, they all agree to limit processed foods. This blog explains they also agree on eating whole foods. Instead of the toilet paper running out, let's empty the produce section.

2. **Cook whole foods at home**. As many states are closing restaurants and bars, this presents a great opportunity for individuals and families to prepare delicious meals from the most health-promoting whole-food ingredients. Turn a negative situation into a positive, teachable moment by getting your children and family members involved making a new dish, trying a new food prep technique or demonstrating safe food handling practices. Research shows that children are more likely to eat new foods they have helped to prepare (2).

3. **Have family meals around a 6 foot table, close but distant :)** What a great opportunity to bring back an American tradition, the family meal time. With our busy schedules, having the whole family at home to share a family meal has decreased (3). There are many nutritional and social benefits to family meals, including weight loss (4).

4. **Make foods delicious and nutritious by stealth using herbs and spices that build the immune system!** An advantage to preparing foods at home allows you to flavor the foods with beneficial herbs and spices. Eating these herbs helps to boost your bodies immune system function and/or help fight viruses
    a. **Oregano,** especially its active component, carvacrol, can inactivate viruses**.** What a wonderful flavor to add to any dish (5 & 6).
    b. **Holy Basil (Tulsi basil)** extract enhances the body's immune response (7)
    c. **Members of the Lamiaceae family (Sage, Peppermint, and Lemon Balm)** can prevent viral infection by as much as 50% (8)
    d. **Garlic,** historically thought to ward off vampires, actually provides several avenues to ward off viruses (9).
    e. **Fennel** contains many valuable compounds that function to kill viruses and bacteria(10)
    f. **Star Anise** essential oil directly inhibited the ability of HIV to infect cells (11)
    g. **Elderberries** has been shown to decrease symptoms of upper respiratory (viral) infections as an alternative treatment for the common cold and flu (12)
    h. **Mushrooms**: These provide immune supporting nutrients (13)

5. **Increase the consumption of fruits, vegetables, and other whole foods.**

    Most literature and health guidance agree that more is better in the case of whole foods, fruits and vegetables. Not only does it decrease inflammation in the body, it also enhances the body's immune system (14)

    a. Eat green leafy vegetables. 1 cup of spinach provides for only 7 calories!

Nutrient	% Daily Value
Vitamin K	181
Vitamin A (in the form of beta carotene)	56
Folate	15
Vitamin C	14

6. **70-80% of your immune system lies in your gut** which also houses a majority of your body's resident bacteria population, also known as the gut microbiome. Gut microbiome cells outnumber cells that compose the human body and are a major influencer in determining the health of a person. Key functions that the gut microbiome performs include digesting fiber, influencing the immune system, and helping to control brain health. Eating fermented foods encourages a healthy gut microbiome and the fermenting process also makes it easier for the body to absorb nutrients out of the food. To encourage a healthy gut microbiome:
    - Consume cultured yogurt, raw sauerkraut, kombucha, kimchi, kefir or other fermented foods (15)
    - Increase soluble fiber found in many vegetables, whole grains, and fruits such as beans, Brussel sprouts, sweet potatoes, avocados, necessary to feed the good bacteria (15)

Annotated Bibliography (Extended information)

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stimulating certain cell types, such as macrophages, lymphocytes, natural killer (NK) cells, dendritic cells, and eosinophils, by mechanisms including modulation of cytokine secretion, immunoglobulin production, phagocytosis, and macrophage activation.

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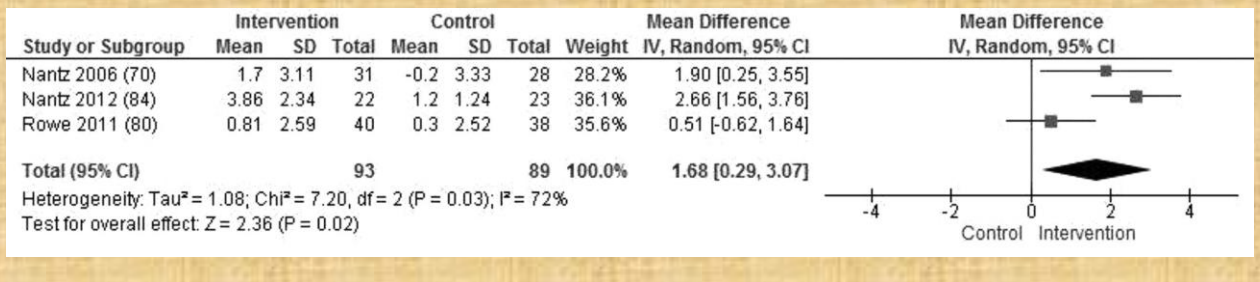
14. Hosseini, 2008, Effects of fruit and vegetable consumption on inflammatory biomarkers and immune cell populations: a systematic literature review and meta-analysis

    - Eighty-three studies were included, 71 were clinical trials, and 12 were observational studies.

    - observational studies found an inverse association between intakes of fruit or vegetables and inflammatory biomarkers

    - intervention studies reported beneficial effects of fruit or vegetable intake, decreased circulating concentrations of C-reactive protein and tumor necrosis factor-α, and increased the γ Δ-T cell population.



Forest plot of randomized controlled trials investigating the effects of fruit and vegetable intake on γ Δ-T cell population percentage. Values are mean differences with 95% CIs determined with the use of generic IV random-effects models. Heterogeneity was quantified by I2 at a significance of P < 0.10. IV, inverse variance.

15. Kassaa, 2014 has shown that certain lactic acid bacteria are specifically effective at controlling virus infections of various kinds.
    - lactobacilli could produce compounds that could help the host cells to defy viral replication
    - Probiotics can decrease the risk or duration of respiratory infection symptoms and have protective effects against viral respiratory infections
    - Oral daily administration of L. plantarum L-137, decreased influenza virus H1N1
    - L. fermentum CECT5716 and L. casei DN114-001enhanced the effects of vaccination against influenza virus and improved antibody responses
    - A mixture of L. gasseri PA 16/8, B. longum SP07/3 and B. bifidum MF 20/5 reduced the severity of symptoms related to the common cold
    - L. rhamnosus GG reduced the incidence of respiratory virus infections
    - L. acidophilus strain reduced influenza-like symptoms
    - A probiotic-fermented dairy drink improved antibody responses to influenza virus vaccination in the elderly in two RCTs
    - Oral administration of L. rhamnosus CRL1505 to of BALB/cmice permitted a protective effect by modulating pulmonary innate immune microenvironment

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