How can I help protect myself and those around me during this pandemic?

Coronavirus is an upper respiratory tract infection. The current strain (SARS-CoV-2) is a novel strain. Although coronaviruses have been among us for a very long time (10,000+ years), we have never been able to produce an effective treatment or vaccine. Instead we have been dependent on our immune system. So, while we wait for an effective treatment and/or a vaccine, how can we help improve our immune system? Besides eating healthy and exercising, we can use supplements. The data is still mixed but continues to build.

Recommended supplements (see references on back):

1. **Zinc**: Instrumental in immune cell development and communication. Important role in inflammatory response and viral infections. 30% of adults are considered deficient.
2. **Vitamin C**: antioxidant and plays a role in immune function
3. **Vitamin D**: decreases inflammation, helps promote immune response, and has an immunosuppressive effect by preventing the detrimental result of prolonged inflammatory responses to the host.
4. **Quercetin**: decreases inflammation and helps facilitate the transportation of zinc across the cell membrane. May prevent viral entry into cells.
5. **N-acetyl-cysteine**: precursor to glutathione which acts as a scavenger of free radicals, especially oxygen radicals. NAC is a powerful antioxidant.

Where do I start?

1. **Know your antibody status**: If you have antibodies, you are way ahead as you have been exposed and may be protected going forward.
2. **Know your Vitamin D level**: surprisingly many people are lower than they might think. This is true as we age, and is being exacerbated by sheltering in place.
3. **Ultimately get a Zinc and copper level:** as you supplement zinc you should be aware that elevated levels of zinc can displace copper, and copper has a role in the immune system function as well. There is a healthy balance.

Other lab tests that may be beneficial (references on back):

1. **Testosterone:** Either elevated levels or low levels may complicate COVID-19 infections. Whether you are on a supplement or have low-T, knowing your level may be beneficial.
2. **Vitamin B12**: Known to be involved with the immune system and possibly important in our fight against COVID-19
3. **Estradiol**: This is similar to testosterone

These strategies are just recommendations based upon observation and our current scientific knowledge. Certainly measures such as socially distancing, hand hygiene and wearing the correct type of mask are important. Making healthy decisions on what you eat, and exercise are important to immune function as well. But remember, if you develop symptoms, we are here to help!

And don’t forget our handout on the suggested dosing for the above supplements as well as information on what to watch for and have on hand to ensure your safety

References:

 References under a= easier to read, b= most recent scientific information

1. Zinc
	1. Coronavirus: To zinc or not to zinc? <https://www.uchealth.org/today/zinc-could-help-diminish-extent-of-covid-19/>
	2. Potential Role of Zinc Supplementation in Prophylaxis and Treatment of COVID-19 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7247509/>
2. Vitamin C
	1. Evaluating the Efficacy of Adjunctive Therapies Used to Treat COVID-19: The Role of Vitamin C and Zinc<https://www.pharmacytimes.com/news/evaluating-the-efficacy-of-adjunctive-therapies-used-to-treat-covid-19-the-role-of--vitamin-c-and-zinc>
	2. Vitamin C and SARS coronavirus <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7110025/>
3. Vitamin D
	1. More evidence on vitamin D deficiency and death rates from COVID-19 <https://www.news-medical.net/news/20200702/More-evidence-on-vitamin-D-deficiency-and-death-rates-from-COVID-19.aspx>
	2. The possible role of Vitamin D in suppressing cytokine storm and associated mortality in COVID-19 patients medRxiv preprint doi: https://doi.org/10.1101/2020.04.08.20058578
4. Quercetin
	1. Taking Quercetin during COVID-19, <https://www.susandopart.com/2020/04/quercetin-and-resveratrol/>
	2. Effect of Quercetin on prophylaxis and treatment of COVID-19. On onging study completes August 31. <https://clinicaltrials.gov/ct2/show/NCT04377789>
5. N-acetyl-cysteine
	1. Is NAC Effective in the Treatment of COVID-19? <https://www.naturemedclinic.com/is-nac-effective-in-the-treatment-of-covid-19/>
	2. N-Acetylcysteine: A potential therapeutic agent for SARS-CoV-2 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7261085/>
6. Testosterone
	1. Low testosterone may impair immune response in men with COVID-19 <https://www.healio.com/news/endocrinology/20200702/low-testosterone-may-impair-immune-response-in-men-with-covid19>
	2. Commentary: Testosterone, a key hormone in the context of COVID-19 pandemic <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7185012/>
7. Vitamin B12
	1. Singpore COVID-19 study: Vitamin B12, D and magnesium supplementation reduces severity in older patients. <https://www.nutraingredients-asia.com/Article/2020/06/29/Singapore-COVID-19-study-Vitamin-B12-D-and-magnesium-supplementation-reduces-severity-in-older-patients>
	2. Evaluation of the Relationship Between Zinc Vitamin D and b12 Levels in the Covid-19 Positive Pregnant Women <https://clinicaltrials.gov/ct2/show/NCT04407572>
8. Estradiol
	1. Study investigates estrogen patch use to lessen COVID-19 complications <https://www.healio.com/news/endocrinology/20200501/study-investigates-estrogen-patch-use-to-lessen-covid19-complications>
	2. Sex-based differences in susceptibility to SARS-CoV infection <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5450662/>