

We had our most incredible Functional Medicine Discussion Group meeting Tuesday evening with the brilliant Dr. Lise Alschuler sharing some of her vast knowledge about antioxidants and cancer! How lucky we are that Dr. Alschuler was willing to give us some of her valuable time and give us a free seminar on cancer and nutrition. She gave us many more pearls of wisdom than I could soak in. Thank you, thank you, Dr. Alschuler! Also, many thanks to Metagenics for supplying some incredible Mediterranean style food.

I started the discussion by laying out the topic questions:

1. Do antioxidants prevent cancer?
2. Do antioxidants prevent cancer recurrence?
3. Is it safe and beneficial to take antioxidants during cancer treatment (chemo, radiation, targeted drugs)

Despite the fact that there was a lot of interesting laboratory and animal research in the 80s indicating that free radical damage plays a role in the initiation of cancer and that various antioxidants such as carotenoids, vitamin E, and vitamin C can quench free radicals and thus prevent cancer, the nutrition community has found itself on the defensive since larger observational and clinical trials have been mixed, with some showing benefit, but others showing no decrease in cancer incidence, and some that seem to find an increased cancer risk with antioxidant supplementation.

As our discussion unfolded, I mentioned that I wanted to pick the topic of nutrition and cancer but I knew that it was too broad a topic. So when the paper was published several months ago using rats given NAC and/or synthetic alpha tocopherol that had increased metastasis of melanoma, spurred me to focus on antioxidants and cancer. This paper led to popular press headlines that **Antioxidants promote cancer**. But of course this study only used NAC and a synthetic form of alpha tocopherol and why would they generalize to all antioxidants?

Dr. Ryan and Dr. Seaton and I then went back and forth on the fact that there seems to be an issue with beta carotene as potentially problematic in some of the research (such as the Finnish smoker's study, aka ATBC). We wondered whether beta carotene became transformed, esp. in smokers into a pro-carcinogen or whether just taking a concentrated dosage caused a relative imbalance with other carotenoids. We also talked about the fact that the other nutrient that seemed to have been shown to be an issue in some of the studies that had a negative outcome was vitamin E. We pointed out that **these studies used only alpha tocopherol** and the recent research points to gamma and delta tocopherol and the tocotrienols as being more cancer protective than the alpha form and taking too much alpha could cause a relative imbalance of the tocopherols.

Then we Skyped Dr. Alschuler in and began by asking her about the controversy about beta carotene and what we were thinking. She explained that **beta carotene as an isolated supplement is very highly reactive and can cause DNA adducts** (DNA damage), esp. in smokers and possibly when combined with estrogen metabolites. This was discussed in The Beta Carotene and Retinol Efficacy Trial.

<http://jnci.oxfordjournals.org/content/96/23/1743.full>

We discussed the NAC melanoma study and Dr. Alschuler explained that there is some reason to avoid NAC and even glutathione **during** cancer treatments because it may promote cancer growth by protecting cancer cells from oxidative damage. But **after** finishing treatment, glutathione is important to restore mitochondrial status. I found the following article that speaks to this:

<http://www.hindawi.com/journals/omcl/2013/972913/> On the other hand, there is no reason to extrapolate from NAC to all antioxidants and therefore it was inappropriate to declare that this paper shows that “Antioxidants promote cancer growth.”

The fact that the only form of vitamin E that is used in the studies is alpha tocopherol, when gamma and delta tocopherol have more potent anti-cancer effects. And tocotrienols may be even more potent anti-cancer agents.

Dr. Alschuler mentioned that a certain level of antioxidants is optimal—not too much and not too little. And combining various antioxidants, like vitamin C, tocopherols, carotenoids, curcumin, etc. may have a more cancer preventative approach. The question that I keep grappling with is, given the large amount of antioxidants found in fruits and vegetables, like blueberries, how can taking a moderate dosage of vitamin C or E or Beta carotene be problematic for cancer patients when eating blueberries is good for these patients? If antioxidants were really going to cancel the effectiveness of their chemotherapy, then shouldn't they be limiting their intake of blueberries? Dr. Alschuler noted that none of the research shows any negative effects of eating fresh fruits and vegetables and, in fact, it all shows the opposite.

Dr. Alschuler explained that other carotenoids like lycopene do not have the same potential risks as beta carotene and that lycopene is a good anticancer nutrient.

I asked if there was good testing for antioxidant status and I mentioned that Keith Block in his book mentions measuring serum levels of various antioxidants. Dr. Alschuler said that she was not aware of accurate tests for antioxidant status. I mentioned the part of the Genova NutraEval and Spectracell's Micronutrient test that look at antioxidant status.

Dorothy asked Dr. Alschuler if she was thinking about updating her book and she said that all the new targeted drugs are problematic, since there is very little data on their interaction with nutrients and there are so many new drugs coming out nearly weekly.

Dr. Verma engaged with Dr. Alschuler about the fact that most oncologists recommend against antioxidant supplements during chemo.

The topic of exercise during cancer treatment came up and Dr. Alschuler explained that she particularly likes her patients to engage in resistance exercise, since it allows them to gain muscle. She also said that she is a fan of interval training for cardiovascular work.

Someone asked about eating alkaline to have an effect against cancer and Dr. Alschuler popped this balloon. She explained that while cancer cells give off acid, this is a byproduct of their metabolism and eating alkaline or drinking alkaline water will not help you to kill cancer cells.

Our next meeting will be on Thursday, Jan 21 @6:30 and the topic is still yet to be decided. I will send an email in the next few weeks with the topic and some papers to read.

Several group members have asked for a list of group members with their contacts. I see it as part of creating a sense of community for functional medicine practitioners on the west side so that we can collaborate with and learn from each other. Anybody wishing not to have your contact info shared with group members in the future, please let me know.

The following group members were in attendance:

1. Jessica Seaton, DC drjessica@drjessicaseaton.com
2. Jeanette Ryan, DC dr.jeanetteryan@verizon.net
3. Olga Pope, MD olgapope@sbcglobal.net
4. Roseanne Dembeck, DC doctorroseann@gmail.com
5. Dorothy Bernet, RD dorothy@healthy4lifenuitrition.com
6. Amber Hoch sportsdiva444@gmail.com
7. Nadini Verma, MD naverma@gmail.com
8. Tracy Garrigan, CHHC tracygarrigan@bonhealth.us
9. Lori Deutsch, DAOM lori@lorideutsch.com
10. Marchelle Brown Lymphatic Massage marchellebrown@earthlink.net
11. Me

The following are group members who have attended previous discussion groups:

1. Adam Toulon, DC drtoulon@gmail.com
2. Jeffrey James, DC jeffreyjamesdc@gmail.com
3. Denise Weisner, LAc denisewiesnerlac@gmail.com
4. Tamara Tiftt, LAc tamaratiftt@gmail.com
5. Suzanne Starler, DC drsuzan@starler.com
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