

ACTING FROM AN EXCESS OF CAUTION

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There is reason for prudent protective action

There is uncertainty about average and peak levels of radioactivity to which some people are being exposed. Radioactive materials cause harm *only* when not enough antioxidants are present to soak up the extra electrons (energetic free radicals; oxidative stressors) induced by radioactive particles. Radiation is like a sub-molecular fire. There is a temperature above which even the best fire resisting protective barrier fails. So it is with radioactivity.

Following are suggestions for people who seek to *increase* their elective protective mechanisms that protect from the consequences of radioactivity (think rust, accelerated aging or submolecular fire).

Antioxidants are a family of molecules that network to safely transfer energetic electrons and channel them into useful work through ATP (a high energy storage molecule). ATP is made inside the cell battery or mitochondrial power center. Toxic minerals, hormone disrupting chemicals, certain persisting pollutants and radioisotopes function as oxidative stressors.

Oxidative stress uses up antioxidants.

Oxidation induced by radiation or any cause increases an individual's daily requirement for protective antioxidants. If the increased need is unmet, deficiency ensues. Inflammatory conditions increase swelling and pain due to repair deferred because of increased immune defense response to immune reactive digestive remnants or anything else recognized by the body as foreign to itself.

Autoimmune, chronic and degenerative illnesses have in common varying kinds of increased oxidative stress and antioxidant deficiency. Acquired molecular impairments produce diverse symptoms. These include self-attacking or imbalanced immune, neurohormonal, digestive, and detoxification and sensory systems. The biological or bioidentical forms of nutrients are safer and more effective than synthetic or isolated forms.

Practical suggestion

Meet increased oxidative stress from any cause with proportionate increase in essential protective antioxidants through diet and protective supplementation. Examples of required antioxidants include vitamins E (the safer all eight forms) and selenomethionine to protect cell membranes. Other examples include ascorbate

(vitamin C), B complex, vitamin D, coenzyme Q10, omega 3 fats, glutathione, and polyphenolic plant protective molecules (quercetin dihydrate and soluble OPC ± freeze dried pomegranate juice) to protect cell contents.

A prudent person, acting from an excess of caution would do the following:

Increase sulfur rich, herbs, fermented and sea sourced protective foods in the diet.

The sulfur rich foods include garlic, ginger, onions, brassica sprouts (broccoli sprouts), and eggs (duck, goose or chicken). One or more of these sulfur rich foods should be *staples* of the diet. They are traditional protective or 'healing' foods.

Herbal, green and white teas rich in ECGC are recommended. Fresh or freeze-dried vegetable juices and fiber or pulp rich juices are recommended. Drink enough water to stay well hydrated. *Avoid* added nutrient poor simple sugar sweeteners.

Fermented foods with healthy prebiotic fiber and probiotic organisms are also protective.

Consume sea vegetables or seaweed salad or watercress or kim chi or raw sauerkraut or mead for further protection.

Supplements that provide comprehensive antioxidant protection are:

1. **Coenzyme Q10 & vitamins E in rice bran oil**
200 mg CoQ10 & 200 IU mixed natural vitamins E two softgels daily
2. **Silybin beta rich silymarin and other liver protective antioxidants**
2 caps twice daily
3. **Phase 1, 2, & lipotropic detoxifier**
2 tabsules twice daily
4. **Fully reduced, fully buffered 100% l-ascorbate**
Preferably buffered with potassium, magnesium, calcium, and zinc sufficient to keep oxidized LDL/HDL and 8-oxo-guanine from forming
5. **Carnitine fumarate and GABA**
2 softgel twice daily; sufficient to keep triglycerides in healthy range
6. **Methylation factors**
1 under the tongue twice daily or sufficient to bring homocysteine levels to lowesg risk, that is < 6

7. Vitamin D3, 5,000 IU twice daily

sufficient to bring blood test of 25-OH-vitamin D to within the protective 50-80 range.

In sum, a prudent person would take the above seven supplements until at least six months after any exposure to radioactivity above usual background levels. Most radio-activity slowly goes away or is removed from the body.

Some isotopes stay for a long time in people who are hospitable and exposed. Hospitable in this context means people who have marginal antioxidants and have lower defenses related to metabolic acidosis and net acid excess in their body.

Even modest amounts of persisting radioactive substances are associated with increased risks of cancer from free radical damage, inhibition of innate anti-cancer mechanisms, and oxidative stress linked to antioxidant deficiencies.

While few people contract cancer, the risk is reduced in proportion to comprehensive antioxidants available as needed. Protective dietary and life style choices further reduce risk. This includes regular and comprehensive physical stretching and walking the equivalent of 10,000 steps daily. This also includes active mindfulness practices to quiet concerns while increasing awareness and ability to make more productive and effective decisions backed by the will to persevere and succeed.

Use of iodine

If there is a known risk of radioactive iodine I-131 coming through the area, then *before* it reaches you and for a few weeks thereafter it makes sense to block uptake of iodine into the thyroid gland. This is a prudent protective strategy for acute situations. Blocking the uptake of iodine into the thyroid by flooding the system with non-radioactive iodine and iodide (iThroid) is a helpful short term strategy and only a short-term, few-week strategy to avoid inducing hypothyroidism. A serving of sea vegetable such as nori or kombu at each meal sufficient to provide 5-10 milligrams of iodine and iodide. If more than a short time consumption of enough iodide to suppress the thyroid gland, we suggest supplementing with 1 grain of desiccated thyroid or equivalent as T3 (cytomel) daily. Prefer organically certified or contaminant free sea vegetables. Avoid artificially colored sea vegetables.

Geiger counters to detect radioactivity

If you are technical, a home Geiger counter is available to monitor the radioactivity in the immediate area of the Geiger counter sensor. For more information on a reliable yet modestly price Geiger counter see, http://www.x-tremegeek.com/portable-geiger-counter.html?&cm_mmc=Mercent--Google--NULL--3102300&mr_trackingCode=E197DD07-70DD-DF11-9C39-001517B1882B&mr_referralID=NA

Disclosure

Dr Jaffe is a physician and biochemist, cross-trained in Western and Eastern medicine as well as in mindfulness techniques. He is a Fellow of the Health Studies Collegium. He is also founding stakeholder in PERQUE Integrative Health and ELISA/ACT Biotechnologies. He takes the above supplements whose forms he helped pioneered. More information can be found at www.PERQUE.com, www.ELISA/ACT.com, as well as www.HealthStudiesCollegium.org

Additional support:

1. [Radiat Environ Biophys](#). 1998 Oct;37(3):187-93.

Effect of natural beta-carotene supplementation in children exposed to radiation from the Chernobyl accident.

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Abstract

Attempts were made to evaluate 709 children (324 boys and 385 girls) who had been exposed long-term to different doses of radiation during and after the Chernobyl accident and had moved to Israel between 1990 and 1994. Upon arrival, all of them underwent a check-up for most common clinical disorders and were then divided into three groups according to their residences (distance from the reactor) and the level of irradiation exposure: no radiation, <5 Ci/m², and >5 Ci/m², respectively. Blood serum analyses for total carotenoids, retinol, alpha-tocopherol and oxidized conjugated dienes in 262 of the children showed increased HPLC levels of conjugated dienes, indicating increased levels of oxidation of in vivo blood lipids in children from the contaminated areas. The levels were higher in girls than in boys. Some 57 boys and 42 girls were given a basal diet with a diurnal supplementation of 40 mg natural 9-cis and all-trans equal isomer mixture beta-carotene in a capsulated powder form of the alga *Dunaliella bardawil*, for a period of 3 months. Blood serum analyses were regularly conducted before supplementation to determine the baseline effect of radiation exposure to the children, after 1 and 3 months of natural beta-carotene supplementation. After supplementation, the levels of the oxidized conjugated dienes decreased in the children's sera without any significant changes in the level of total carotenoids, retinol or alpha-tocopherol. Other common blood biochemicals were within the normal range for all tests and no statistical differences before or after supplementation of beta-carotene were noted. High pressure liquid chromatography (HPLC) analyses for carotenoids in the blood detected mainly oxycarotenoids, and to a lesser extent, all-trans beta-carotene, alpha-carotene, but not 9-cis beta-carotene. The results suggest that irradiation increases the susceptibility of lipids to oxidation in the Chernobyl children and that natural beta-carotene may act as an in vivo lipophilic antioxidant or radioprotector.

2. [Arch Environ Health](#). 2001 Jul-Aug;56(4):320-6.

Dietary and clastogenic factors in children who immigrated to Israel from regions contaminated by the Chernobyl accident.

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Abstract

The authors evaluated the possible association between dietary history and plasma clastogenic factors in children who immigrated to Israel between 1989 and 1993 from regions contaminated by the Chernobyl accident. The authors compared questionnaire data about demographic variables, dietary histories before and after immigration occurred, and health status with clastogenic factor scores for 162 immigrants. Logistic regression analysis revealed a negative association between clastogenic factor scores and frequency of consumption of fresh vegetables and fruit among children < or = 7 yr of age during the postimmigration period. Intake of eggs and fish by boys who were < or = 7 yr of age prior to immigration was associated positively with clastogenic factor scores. Consumption of fresh vegetables and fruits afforded protection to the immune systems of children who were < or = 7 yr of age.