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Our February 2018 Newsletter for Healthy Living

Pesticides and The Dirty Dozen

Eating fresh produce is essential to staying healthy and warding off chronic disease, but if you purchase conventional varieties, you're probably getting some pesticide residues along with many of your bites. The health effects of these residues are being debated, but considering the many health risks linked to pesticides — from infertility and birth defects to endocrine disruption, neurological disorders and cancer — there's good reason to keep your exposure as low as possible, including opting for organic produce as much as possible. The U.S. Food and Drug Administration (FDA) compiled an annual pesticide residue report released in November 2017, showing the majority of U.S. fruits and vegetables are contaminated with pesticide residues.

This sampling of nearly 6,000 foods revealed that fruits and vegetables are most frequently contaminated with pesticide residues. Notably, 82 percent of domestic fruits and 62 percent of domestic vegetables had such residues, including: 97 percent of apples; 83 percent of grapes; 60 percent of tomatoes; 57 percent of mushrooms, and 53 percent of plums. Among imported fruits and vegetables, 57 percent and 47 percent contained residues, respectively, and the imported varieties were more likely to contain illegal levels of pesticide residues compared to the domestic samples. Raising red flags is the fact that chlorpyrifos, a neurotoxic pesticide, was the



fourth most-prevalent chemical in the samples out of the more than 200 pesticides detected. As noted in Environmental Health News, "Risk assessment practices at federal agencies have not been updated for modern scientific principles, including accounting for the fact that people are exposed to multiple chemicals and that certain groups, such as genetically susceptible, the very

2,4-D is one of the ingredients in Agent Orange, which was used to defoliate battlefields in the jungles of Vietnam, with horrendous consequences to the health of those exposed. It's also a common ingredient in "weed and feed" lawn care products, because it kills weeds without harming grass, fruits or vegetables, the latter of which makes it very popular among farmers. This is

“Risk assessment practices have not been updated for modern scientific principles...”

young and old can be at greater risk of exposure.”

Also per Environmental Health News, an internal memo from the FDA, obtained via a Freedom of Information Act (FOIA) request, estimated the use of 2,4-Dichlorophenoxyacetic acid (2,4-D) would increase by threefold in the next year due to the approval of genetically engineered crops designed to withstand it. The U.S. Environmental Protection Agency (EPA) approved the use of Enlist Duo — an herbicide manufactured by Dow Chemical that combines 2,4-D with Roundup, to be used on corn and soybeans genetically engineered to tolerate both 2,4-D and glyphosate — in 2014. "The U.S. Department of Agriculture estimates that by 2020, the use of 2,4-D on America's farms could rise between 100 percent and 600 percent now that it has been approved as part of Enlist Duo," the National Resources Defense Council (NRDC) stated, echoing the FDA's estimate.

concerning because IARC ruled 2,4-D a possible human carcinogen in 2015, and there is concern it may increase the risk of Non-Hodgkins lymphoma and soft-tissue cancer known as sarcoma. Further, it's an endocrine-disrupting chemical that may negatively affect thyroid hormones and brain development, as well as being associated with birth defects, reduced fertility and neurological problems.

A study of close to 4,500 people in the U.S. also found that those who "often or always" ate organic had about 65 percent lower levels of pesticide residues compared to those who ate the least amount of organic produce. So choosing organic foods as much as possible is an important way to lower your exposure to pesticides and, in fact, avoiding pesticides is the No. 1 reason why people go organic. Not only do these chemicals pose a direct risk to human health, including to developing babies, but they

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- 2018 Organic Produce CSA— Sign up now!

I Like Coffee, I Like Tea...

Just as you can make or break your health via the foods you choose at each meal, you can support or sabotage your well-being one beverage choice at a time. At one end of the spectrum would be soda — one of the absolute worst choices to drink. At the other, pure water — arguably the best for quenching your thirst and supporting

percent less likely to have glioma compared with those in the bottom category. It may help your brain function as well, with research showing that drinking one to two cups of coffee daily may lower your risk of Alzheimer's disease and other forms of dementia, cognitive decline and cognitive impairment compared to drinking less than one cup.

“The health potential of your coffee and tea depends on several factors, beginning with quality.”

optimal health. For those times when you're looking for something to savor and sip, an excellent alternative is coffee or tea, both of which have earned a solid spot among healthy beverages.

After water, coffee and tea are the most commonly consumed beverages worldwide, and they're also top sources of both caffeine and antioxidant polyphenols for Americans. Tea, particularly green tea, has been linked with a reduced risk of stroke, diabetes and depression, and improved blood pressure, abdominal obesity and glucose levels, while coffee consumption is associated with reduced risk of premature death and cardiovascular death, for starters. "Coffee is a complex beverage containing hundreds of biologically active compounds," researchers wrote in the *Journal of the American College of Cardiology*, and this is why it, and tea, have such far-reaching health potential.

From your heart to your vision to your brain, there are many reasons to enjoy a cup (or a few) of coffee or tea daily — organic, preferred. Research presented at the American Heart Association's Scientific Sessions 2017 found that compared to non-coffee drinkers, coffee drinkers had a 7 percent lower risk of heart failure and an 8 percent lower risk of stroke for each additional cup of coffee consumed per week. Separate research linked coffee consumption to a lowered risk of heart disease, cancer, nonalcoholic fatty liver disease, cirrhosis and diabetes. In the latter study, the largest risk reduction came from drinking three to four cups daily, but they suggested drinking more would likely benefit health, not harm it.

As for your brain health, increased coffee (and tea) consumption was linked to a lower risk of glioma brain tumor, such that people in the top category of coffee consumption were 91

Drinking coffee may even enhance long-term memory consolidation and, if you drink the caffeinated variety, improve attention and alertness while decreasing your risk of depression.

Caffeine can be a double-edged sword, with excess consumption causing adverse effects, and everyone's tolerance to caffeine is unique. However, most people naturally adjust their coffee consumption to avoid the jittery feeling that comes from too much caffeine. Researchers wrote in the *Archives of Internal Medicine*: *"At low to moderate doses, caffeine has well-known psychostimulant effects such as improved psychomotor performance, increased vigilance, elevated arousal (lesser somnolence and greater activation), and increased sensations of well-being and energy. The known effects of caffeine are dose-dependent, but typically biphasic, i.e. low doses are perceived as pleasant and stimulating whereas a reverse effect is observed with higher doses. Most individuals seem to adapt their caffeine consumption to their own tolerance, so that the habitual is within the range between reinforcing and aversive effects."*

Many of the health benefits offered for coffee consumption can also be gained by drinking tea, so a case can be made for adding either (or both) to your daily diet. For instance, drinking green tea is associated with reduced mortality due to all causes, as well as mortality due to heart disease. Research also shows holistic benefits to green tea consumption, including lower blood pressure, oxidative stress and chronic inflammation. In terms of heart health, green tea improves both blood flow and the ability of your arteries to relax, with research suggesting a few cups of green tea each day may help prevent heart disease. One of green tea's claims to fame is the catechin epigallocatechin-3-gallate

(EGCG). Studies show EGCG can be helpful for the prevention of arteriosclerosis, cerebral thrombus, heart attack and stroke — in part due to its ability to relax arteries and improve blood flow.

In addition, tea may also benefit: **Type 2 Diabetes** One study found people who consume six or more cups of green tea daily had a 33 percent lower risk of developing Type 2 diabetes than those who consumed less than one cup per week. **Weight Loss** There is some evidence that long-term consumption of green tea catechins is beneficial for burning fat and may work with other chemicals to increase levels of fat oxidation and thermogenesis.



Bone Health Green tea polyphenols combined with a form of vitamin D called alfacalcidol could boost bone structure and

strength, according to a study in mice. The mixture may reverse damage to bones caused by lipopolysaccharide (LPS)-induced chronic inflammation, which could in turn reduce the risk of osteoporosis. **Vision Health** Catechins in green tea could help protect you against glaucoma and other eye diseases, as research found that the compounds travel from your digestive system into the tissues of your eyes. During the study, the catechins found in green tea were absorbed into various parts of the eyes anywhere from 30 minutes to 12 hours after rats were given tea. **Cancer** Green tea components have been shown to downregulate the expression of proteins involved in inflammation, cell signaling, cell motility and angiogenesis, while an association between green tea intake and decreased risk of cancers (including ovarian and breast) has been reported. Previous research has shown that green tea polyphenols act on molecular pathways to shut down the production and spread of tumor cells. They also discourage the growth of the blood vessels that feed the tumors. EGCG even acts as an antiangiogenic and antitumor agent, and helps modulate tumor cell response to chemotherapy.

Much of the fanfare surrounding tea goes to green tea, but there are many different varieties to consider. Black and green tea (as well as oolong, dark and white teas) come from the same plant, an evergreen called *Camellia sinensis*. It is the processing method and

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also threaten the Earth as we know it. Glyphosate residues of 653 parts per billion (ppb) have even been detected in some honey samples — an amount that's more than 10 times the European limit of 50 ppb. Bees, as pollinators, travel from plant to plant. With grasslands being increasingly converted into GE corn and soybean fields where glyphosate and other pesticides are amply sprayed, it's easy for them to become

food and consumer product you buy. In addition, it doesn't have to be "all or nothing" — going 100 percent organic is ideal, but every organic purchase you make helps. If you must choose between which products to purchase organic, consider using the Environmental Working Group's (EWG) "**Dirty Dozen**" list for produce, which are among the most heavily contaminated with pesticides and therefore the most important plant

the healthy compounds contained in the peel (and there can still be residues that have penetrated into the produce flesh). For these reasons, the best way to avoid pesticide residues in your food is to choose those that haven't been exposed to them to begin with, i.e., go organic.

Michigan Grass-fed Beef:
*Humanely-raised at
Lamb Farm in Manchester, MI*

"Scientific evidence suggests vitamin D can help prevent cancer, diabetes and obesity."

contaminated and then transfer that contamination to their honey. Research published in the journal *Nature Communications* has similarly revealed that pollen collected next to corn fields is contaminated with up to 32 different pesticides. At this point, the effects of these chemical exposures on bees and other pollinators is unknown, but common sense would indicate that they can't be good. So remember that you are actually "voting" for less pesticides and herbicides with every organic and grass fed

foods to buy organic. As of 2017, these include: **strawberries, apples, cherries, tomatoes, spinach, peaches, grapes, bell peppers, nectarines, pears, celery and potatoes.** For the nonorganic produce you consume, washing with a solution of baking soda may help to remove some of the pesticides on the surface of the fruit or vegetable, although it won't remove chemical residues that have penetrated beyond the peel. Peeling is another option to reduce pesticide residue, but this also means you're removing



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Reference: US FDA, Pesticide Residue Monitoring Program Fiscal Year 2015 Pesticide Report. *Environmental Health News* December 21, 2017. NRDC March, 2016. *Environmental Health Perspectives* DOI: 10.1289/ehp.1408917. Organic Consumers Association May 24, 2017. Environmental Working Group April 12, 2017. *Nature Communications* May 31, 2016. EWG, 2017 Dirty Dozen. *Journal of Agriculture and Food Chemistry*, October 25, 2017.

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degree of oxidization (exposure to oxygen) that create the different tea types. While black tea is oxidized, green tea is not oxidized at all after the leaves are harvested. This minimal oxidation may help to keep the beneficial antioxidants in green tea intact, although both green and black teas have beneficial effects. Generally speaking, the less the tea is oxidized, the lower its caffeine content and higher its antioxidants. White tea is actually the least processed of all teas, while oolong is semi-oxidized, placing it between green and black teas in terms of caffeine and antioxidant levels. There are also herbal teas, which vary quite dramatically in flavor and health effects (herbal teas are actually not considered "true" teas, as they do not come from *Camellia sinensis*, but they can be beneficial and enjoyable nonetheless).

The health potential of your coffee and tea depends on several factors, beginning with quality. Coffee, which is a heavily pesticide-sprayed crop, should always be organic, as well as shade-grown. Coffee is a shade-loving plant, but growers often strip for-

ests to make growing and harvesting easier. This destroys the ecological habitat of many natural pest deterrents, such as birds and lizards, while the pests flourish, resulting in additional pesticide use in nonshade-grown varieties. It's equally important to choose organic tea, when available, as well as choose varieties grown in nonpolluted areas, as tea plants readily absorb lead and fluoride from the soil. Selecting organic will help you avoid pesticides, while choosing tea grown in a pristine environment will ensure that the least amount of fluoride, heavy metals and other toxins from soil and water possible leaches into the leaves. A clean growing environment is essential to producing a pure, high-quality tea.

You'll also want to avoid adding health-busting additives like sugar to your coffee or tea. All you need to do to enjoy the health benefits of coffee and tea is slowly sip and savor your organic unsweetened brew. However, if you want to kick the benefits up a notch higher, there are a couple of tricks to do so. For tea, add a squeeze of fresh lemon juice, which may help to stabilize its

beneficial catechins so you can absorb more of them. For coffee, adding in coconut oil or medium-chain triglyceride oil (MCT oil) may help you to burn fat and improve your mitochondrial function. Start with a small amount, such as 1 teaspoon of MCT oil, working your way up to 1 or 2 tablespoons, to avoid gastrointestinal side effects. You can also blend in a pat of raw grass fed butter. This recipe is a favorite among those following a ketogenic diet. In fact, many consider MCTs "the ultimate ketogenic fat," as it allows you to eat slightly more net carbs while still staying in nutritional ketosis. Without MCTs, you'd have to cut carbs more drastically in order to maintain ketosis, and hot coffee is an ideal carrier for MCT oil. Ultimately, whether you prefer your coffee black or with MCT oil, or your tea with or without lemon, these beverages represent a simple way to increase your intake of antioxidants and other disease-fighting compounds daily.

Reference: *Journal of the American College of Cardiology*, 2013 Sep 17; 62(12):1043-51. *EurekAlert* Nov 13, 2017. *British Medical Journal* 2017 Nov 22; 359:j5024. *European Journal of Nutrition* 2017 Nov 9. *Nature Neuroscience* 17, 201-203(2014). *Journal of Agricultural and Food Chemistry* Feb 10 2010, 58(3):1523-34. *The Tea Spot*, About Tea.



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