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A PLANT-BASED APPROACH TO

EATING TO BEAT DISEASE



PLANT-BASED DIETS

What if there was a way we could kill cancer stem cells, support our immune system, protect our DNA, and stimulate the development of blood vessels in the body? Well, I have some exciting news for you — we can. The prescription is simple: eat delicious food. My forthcoming book, [Eat to Beat Disease: The New Science of How the Body Can Heal Itself](#), highlights the science that proves this to be true. Better yet, the foods we look at are also proof positive that by choosing to eat a plant-based diet, you've already made an incredibly impactful choice for your health.

Just take a look at some of the science that shows how plant-based eating supports your health:

- **Lengthens your telomeres:** Telomeres are the end strands of our DNA that protect them from damage. Think of them like the little cap on the end of your shoelace — they prevent the rest of your DNA from falling apart! A recent study reports that vegetable-rich diets are associated with longer telomere length in women. Longer telomeres = healthier DNA!
- **Allows our microbiome to live long and prosper:** Plant-based foods are nature's powerhouses for delivering natural dietary fibers to your body. Dietary fiber is what feeds the organisms that live within your microbiome, so the more of those you eat, [the healthier and stronger your microbiome becomes](#). Why does that matter? Well, the microbiome is linked to your body's other health defense systems, so maintaining a healthy microbiome is vital to essential processes like angiogenesis (blood vessel development), stem cell function, and DNA protection!
- **Guards your DNA:** Plant-based diets are also rich in bioactives (compounds present in food that have an effect on the organism consuming it) that benefit the body. For example, the antioxidants found in oranges, like vitamin C, naringenin, and hesperidin, have been shown to improve the properties of blood to protect DNA. The combined antioxidant benefits gained from consuming whole foods are more powerful than swallowing a supplement, adding evidence that eating a healthy diet is better than using vitamins as a shortcut.
- **Meaningfully treats immune disease:** Another benefit? The compounds available in plant-based diets also calm your immune system and help with major immune disorders, like MS. A recent study even showed plant-based eating can help improve MS symptoms.

And this all comes just from continuing to eat the foods that are already on your plate! Wondering how you can magnify these impacts even further? Then I suggest learning about the 5x5x5 framework,

which I lay out in [Eat to Beat Disease](#). This model is intended to help you make food choices that positively affect the body's five defense systems (angiogenesis, regeneration, DNA protection, microbiome, and immunity) each and every day. Optimizing your plant-based diet to improve each system using this model is the next step to leading a healthier, happier life.

Want to get started? Let's go through a few examples of foods with built-in health effects, look at kitchen tips that could change your life, and practice revolutionizing your health with a few new recipes.



5 FOODS WITH SURPRISING HEALTH BENEFITS

Ready to restock your fridge and take your diet to the next level? [Eat to Beat Disease](#) will have the complete list of 5x5x5 foods (there are over 200 foods scientifically proven to optimize one or more defense systems!), but below are five of my favorites, and information about the surprising health benefits they offer. Add these to your shopping list today!

Purple Potatoes: Food Fit for Royalty

Originating from Peru, the purple potato was prized by the Incas for its nutritive benefits. Little did the Incas know, it was because these potatoes contain the bioactive anthocyanin, a blue-purple pigment that also gives dark berries their hue. It's this natural dye that packs a healthy punch. Researchers have found that purple potatoes can have health effects that range from wiping out colon cancer cells to killing cancer stem cells!

Researchers at Penn State University found in a laboratory test that, compared to an anti-inflammatory drug called Sulindac, purple potatoes had a comparable efficacy of starving colon cancer stem cells of key survival factors they needed to grow, effectively killing them. Best of all, these bioactives seems to remain stable under many different conditions, so you can cook and enjoy the potatoes any way you like!



Kiwi: A Darling for DNA

We should first talk about the kiwi by correcting our nomenclature. The fruit we call kiwi has a proper name: kiwifruit. It's actually a large berry that originated in China, where it was once collected from the wild for medicinal purposes.

With that settled, we should thank the kiwifruit for the positive improvements it brings to our microbiome (maintaining the integrity of our lining to prevent “leaky gut”), glucose metabolism, and lipid metabolism. Kiwifruit also contains high levels of vitamin C, chlorogenic acid (just like

blueberries!), and quinic acid, which all have antioxidant effects.



Perhaps most interestingly, researchers at the Rowett Research Institute in Scotland examined kiwifruit's ability to reduce DNA damage. They recruited 14 healthy volunteers and gave them one, two, or three kiwifruits to eat each day. The participants ate a different dose of fruit during each of three periods of time, and their blood was drawn for a Comet assay at the beginning and end of each period. The results showed that eating kiwi, regardless of the amount, could reduce DNA damage by approximately 60%. When the researchers looked further at the DNA, they found that eating three fruits per day actually increased DNA repair activity by 66%. So, eating kiwifruit not only aids the blood in neutralizing DNA-damaging free radicals, but it also helps rejuvenate DNA that has already been damaged!

Blueberries: An Athlete's Best Friend?

More than just a smoothie favorite, blueberries are worthy of a dedicated daily dose. Their blue hue comes from the bioactive delphinidin, an antiangiogenic compound. Other bioactives, like resveratrol and chlorogenic acid, can activate cardiac stem cells and regenerate heart tissue under stress, protect stem cells, or have anti-inflammatory, antiangiogenic, and blood pressure lowering effects.

If you're an athlete, then pay blueberries extra attention. A consortium of academic researchers collaborated on a study aimed at defining the impact of blueberries on the body after intense exercise. At the end of six weeks of eating blueberries, study participants did a two-and-a-half hour treadmill run and blood was drawn to see what happened to their immune cells, and the effect of eating blueberries. The blood samples were analyzed for different immune cells, including T-cells, B-cells, and natural killer (NK) cells.

The results were eye-opening. Blueberry eaters had almost double the number of NK cells before exercise compared to those who did not eat blueberries. More surprisingly, NK cells remained elevated in these individuals for at least one hour after exercise ceased, which is the exact inverse of what is normally observed, as NK cells tend to rapidly decline after intense exercise!

The ability of blueberries to increase NK cell numbers, even in circumstances where they would ordinarily decline, is significant. NK cells are critical to immune responses that eliminate virus-infected cells or tumor cells, and they can help the immune system develop learned responses to foreign invaders.



Who's ready for a cancer-fighting, DNA-repairing blueberry and kiwi fruit salad?!

Tea: Pour an Extra Cup

Tea, the second most popular beverage in the world after drinking water, has been brewed for more than 4,000 years. Tea leaves contain more than 2,000 bioactive compounds, like catechins (EGCG), gallic acid, and theaflavins. Tea extracts have really potent angiogenesis inhibitory effects.

In addition to their antioxidant, anti-inflammatory, and antiangiogenic properties, the health-promoting polyphenols in tea enhance the microbiome. Overall, drinking any tea increases good bacteria, decreases bad bacteria, and helps the microbiome produce more of the beneficial health-promoting short chain fatty acid metabolites.

Different varieties of teas exhibit different potencies, but here's what you can expect from my favorite types:

Green Tea

Of course, most people commonly think of green tea as the healthiest tea, and we can thank the presence of polyphenols like EGCG for that. EGCG reduces harmful angiogenesis and cancer growth, lowers blood pressure, improves blood lipids, restores homeostasis of immune cells, and has anti-inflammatory properties. Drinking 2-3 cups of green tea daily reduces the risk of colon cancer by 40%.

Specific to cancer, green tea meaningfully impacts cancer stem cells, which are responsible for initiating the growth of many cancers, as well as igniting recurrence after treatment. One recent discovery showed that green tea (because of the presence of EGCG) can kill cancer stem cells by starving them of the vital blood supply they need to metastasize. This effect may help explain one of the many protective effects of tea against colon and other cancers.

Black Tea

According to popular lore, black tea should be devoid of health benefits because it is fermented and has fewer polyphenols than green tea. However, black tea can mobilize stem cells, promoting regeneration.

Chamomile Tea

Chamomile tea is an herbal tea made with the dried petals of the chamomile flower. Chamomile contains bioactives like apigenin, caffeic acid, and chlorogenic acid, which all have antiangiogenic



activity. Researchers at the University of Minho in Braga, Portugal, found that chamomile tea could inhibit angiogenesis by preventing signals that activate blood vessel cells from being sent.

Pomegranate: Get to Know Akkermansia

Whether you think of yourself as a certified health nut, or just enjoy an occasional scroll through the science section of your favorite news website, you've likely already seen or heard about the reams of research into the microbiome. There's good reason for that — it's one of our body's five key defense systems, and it wields wide-ranging influence over our health.

The microbiome is made up of trillions of bacteria and I'm a big fan of one in particular: *Akkermansia muciniphila*. (I know, it's a mouthful!) It only makes up only 3% of all the bacteria in the gut microbiome, but this small population carries a big stick! *Akkermansia* can help control the immune system, improve blood glucose metabolism in the body, decrease gut inflammation, and combat obesity.

Its impact on the immune system is especially startling. Out of 37 trillion bacteria in the microbiome, the presence of *Akkermansia* predicts the best response to a cancer immunotherapy. If patients have the bacteria, they are more likely to respond and fight their own cancer. If they lack the bacteria, their immune system may not respond, and the treatment fails. Checkpoint inhibitors, one of the most cutting-edge forms of cancer treatment, which use the body's own defense systems to fight cancer, are proving to work most effectively in patients where a rich population of *Akkermansia* is present in their gut.

Unfortunately, if you're rushing to the health food store or Amazon to buy *Akkermansia*, you're out of luck. It is not effective as a probiotic. But you can eat certain fruit and drink their juices to change the gut's environment to become one that will stimulate the growth of *Akkermansia*.

The best option? Pomegranate juice, which is high in ellagitannins, has been shown to encourage growth of *Akkermansia*!



5 KITCHEN TIPS

Eating to beat disease is about more than just food choices, it's lifestyle ones too! When it comes to your kitchen, that means being smart about how you eat the foods you love. Should you reheat your leftovers in the microwave or the toaster? Drink water from a plastic bottle or a glass one? Read on to find out!

Avoid Microwaving

If leftovers are to be reheated, use the oven, stove, or toaster oven to heat gradually, instead of the microwave. Especially avoid microwaving starchy foods, since the high heat will change starches into a harmful polymer that can amass inside your body and cause damage to your organs. *Extra credit:* Pack that lunch in a glass or metal, not plastic, container!

Make Smart Extra Virgin Olive Oil (EVOO) Choices

Stock up on cold-pressed olive oils made from one of the following monovarietals: koroneiki (Greece), picual (Spain), moraiolo (Italy) as they have the highest levels of polyphenols. Store EVOO in a dark tinted jar or bottle to protect it from light, which can make the oil become rancid, as well as degrade the health-promoting bioactives. EVOO can keep for up to 2 years from the date of bottling, if kept in a cool, dark area.

When using, do not heat olive oil (or any other oil) to its smoking point, which can generate toxic fumes as well as convert the oil into harmful trans-fats. If you are sautéing or stir-frying, use only a cast iron, stainless steel, or nonstick ceramic pan.

Use All Of The Vegetable

The discarded portions of our veggies can be the healthiest! For broccoli, don't just cook the florets, prepare the stems, too. Same with mushrooms. Although we traditionally cook with the tops and throw away the stems, use them! The stems of both broccoli and mushrooms contain high levels of bioactives that support health defenses. Similarly, with carrots, not only should you buy whole fresh carrots, including their green tops, but you should also cook the greens. And when you cook with tomatoes, know that the skin contains high amounts of lycopene. Eat tomato skin!

Avoid Bottled Water

Many people keep bottled water in their pantry for easy hydration, but I recommend you avoid regularly consuming water from plastic bottles. Studies have shown that even without BPA plastic, the plastic particles called “microplastic” will seep into the water you drink. One study found as many as 2,400 pieces of microplastic in just 8 fluid ounces of bottled water!

A hack for better water? Keep a glass pitcher of chilled water in the refrigerator, and add bioactives to it by dropping in sliced citrus, berries (blueberries!), celery, or cucumber to create refreshing, lightly-flavored water. Transport with your own stainless steel, glass or other reusable water bottle.

Add Black Pepper

Black pepper, like a few other spices mentioned in [Eat to Beat Disease](#), won't just bring out the flavor in your food, it will also unlock defense system-optimizing capabilities inside your body. Piperine, the bioactive in pepper, leads to better absorption of other food bioactives, like curcumin from turmeric. Use whole peppercorns and grind, rather than relying on pre-ground pepper. It will give you a fresher taste — and promotes better absorption.



5 PLANT-BASED RECIPES



BROCCOLI RABE WITH SPAGHETTI

Broccoli rabe contains glucosinolates that break down during digestion into bioactive metabolites with health benefits. Regular dietary intake of cruciferous vegetables lowers the risk for developing several cancers, including breast, prostate, lung, and Non-Hodgkin's lymphoma.

BROCCOLI RABE WITH SPAGHETTI

INGREDIENTS

Serves 4

- 1 large bunch (750 g / 1 ½ lbs) broccoli rabe, stem ends trimmed
- salt
- 65 ml (¼ cup) extra virgin olive oil
- 6 cloves of garlic, thinly sliced
- 15 g (1 Tbsp) Calabrian chili paste or 2 small red chili peppers, finely chopped
- 125 ml (½ cup) dry vermouth
- 500 g (1 lb) spaghetti or farro spaghetti

DIRECTIONS

Heat a few inches of water to rolling boil, add salt to the water and cook broccoli rabe 3 minutes.

Place in ice water bath to cool, drain, dry, and cut into 2 inch pieces.

Heat a large pot of water to boil for pasta.

Heat a large skillet over medium heat with extra virgin olive oil, 5 turns of the pan.

Add garlic and chili paste, stir another minute.

Add dry vermouth and add broccoli rabe.

Taste to adjust salt and chili, reduce heat to simmer.

Meanwhile, salt the boiling water and cook spaghetti 1 minute less than package directions.

Add 1-2 ladlefuls of starchy water to broccoli rabe; drain pasta and toss to combine.



POMEGRANATE, ORANGE, AND ENDIVE SALAD

The seeds of pomegranate contain high levels of polyphenols known as ellagitannins, which have been shown to inhibit the growth of prostate cancer. Consuming both the fruit and the seed (together called the aril) may have more benefit than drinking juice of the fruit alone.

POMEGRANATE, ORANGE, AND ENDIVE SALAD

INGREDIENTS

Serves 4

- 2 small heads Belgian endive leaves
- 50 g ($\frac{2}{3}$ cup) fennel
- 75 g ($\frac{1}{2}$ cup) pomegranate arils (seeds)
- 2 navel or blood oranges
- 15 g ($\frac{3}{4}$ cup) arugula
- fennel fronds
- 20 ml (1 $\frac{1}{2}$ Tbsp) extra virgin olive oil
- 5 ml (1 tsp) orange juice
- 5 ml (1 tsp) red wine vinegar
- salt
- Aleppo pepper

DIRECTIONS

Separate Belgian endive into individual leaves.

Shave fennel thinly using a sharp knife or mandoline.

Peel and cut oranges into segments.

Pick tender fronds from the head of fennel.

Place all ingredients in a bowl.

Mix olive oil, orange juice, vinegar, salt, and pepper. Pour into bowl and toss gently.

Serve promptly.



RAW PORCINI STEM SALAD AND ROASTED CAPS WITH CALAMINT SALSA VERDE

Mushrooms contain a bioactive called beta-glucan that promotes the immune system through the gut microbiota. Beta-glucan also suppresses the growth of tumor blood vessels and inhibits cancer growth. Up to 13% of the fiber content of porcini mushrooms is made up of beta-glucan.

RAW PORCINI STEM SALAD AND ROASTED CAPS WITH CALAMINT SALSA VERDE

INGREDIENTS

Serves 4

- 360 g (12 oz) fresh porcini, caps and stems separated
- 8-10 small tomatoes, on the vine if possible
- 15 g (1 Tbsp) calamint* leaves coarsely chopped
- 30 g (2 Tbsp) fresh basil leaves, coarsely chopped (about 24 leaves)
- 15 g (1 Tbsp) fresh mint, coarsely chopped (about 12-15 leaves)
- 1 shallot, minced
- 1 lemon, juiced
- ¼ clove garlic, crushed to a paste with the side of the knife
- 1 clove garlic, crushed
- extra virgin olive oil, as needed

NOTE

*Calamint is also known as nepitella or wild Tuscan mint. If unavailable, you can substitute oregano or marjoram.

DIRECTIONS

Macerate the minced shallot in enough lemon juice to cover. Set aside.

Place the roughly chopped herbs in a mortar and grind them into a paste. Mix in the garlic and add enough olive oil to cover. Just before serving, mix the shallots with the herb paste and season with salt and pepper.

Season the vine tomatoes with olive oil, salt, and pepper. Roast in a moderate oven (325°F/162°C) until the skins blister and the flesh is slightly caramelized and fragrant, about 20-30 minutes.

While the tomatoes are in the oven, cut the porcini caps into thick strips, season to taste with salt and pepper, and pan fry them in olive oil with a crushed clove of garlic until golden brown and tender. Arrange them on a warm shallow serving bowl with the vine tomatoes and all their rendered juices.

Very thinly slice the raw porcini stems with a sharp knife or mandoline; dress with olive oil, lemon juice, and some of the salsa verde. Arrange the marinated stems on top of the tomatoes and roasted porcini tops. Serve the extra salsa verde on the side.



ROASTED TOMATOES WITH ORECCHIETTE

Studies show that men who eat more tomatoes have lowered risk of prostate cancer. This cancer-fighting activity may be attributed to tomato's lycopene content, which is highest in the San Marzano tomato. There is a high amount of lycopene in tomato skin so consuming whole tomatoes may have more health benefits than eating peeled tomatoes.

ROASTED TOMATOES WITH ORECCHIETTE

INGREDIENTS

Serves 4 to 6

- 500 g (1 lb) ripe San Marzano tomatoes, or cherry tomatoes
- 50 ml (¼ cup) extra virgin olive oil, plus additional to drizzle on top
- 2 cloves of garlic finely chopped
- small handful flat leaf parsley, chopped
- salt
- 50 g (½ cup) breadcrumbs
- 10-15 basil leaves, cut into thin strips
- optional: crushed red pepper (peperoncino)
- 500 g (1 lb) orecchiette pasta, or other pasta of your choice

DIRECTIONS

Preheat oven to 200°C / 400°F.

For San Marzano tomatoes, cut in half lengthwise, remove excess seeds and stem. Chop into bite-size pieces. If using cherry tomatoes, cut in half lengthwise.

Add chopped tomatoes to an oven-safe casserole pan. Add chopped garlic, parsley, olive oil, salt, and red pepper if using. Stir to combine all ingredients.

Sprinkle breadcrumbs over the top of the tomato mixture; drizzle a little olive oil over the top.

Roast in oven for about 20-25 minutes covered with foil until tomatoes are bubbly. Remove foil and cook 5-10 minutes longer until topping turns golden brown.

Meanwhile, bring large pot of salted water to a boil. Cook orecchiette pasta until al dente. Drain pasta, add to roasted tomato mixture; stir well to combine.

Sprinkle basil over the top. Additional olive oil may be added over the top when serving.



WALNUT AND ARUGULA PESTO

Walnuts are a rich source of omega-3 fatty acids, lignin, quercetin, ellagic acid, and other bioactive molecules that boost brain health, promote a healthy microbiome, and improve outcomes in prostate cancer.

WALNUT AND ARUGULA PESTO

INGREDIENTS

Serves 4

- 300 g (3 cups) walnuts, toasted
- 100 g (2 cups) arugula
- 60 g (4 Tbsp) red miso
- 12 cloves garlic, peeled and grated
- 15 ml (1 Tbsp) sherry vinegar
- 10 ml (2 tsp) lemon juice
- 50 ml (¼ cup) garlic oil
- 35ml (2 ½ Tbsp) extra virgin olive oil
- 25 ml (4 tsp) walnut oil
- salt
- black pepper, freshly cracked from a mill

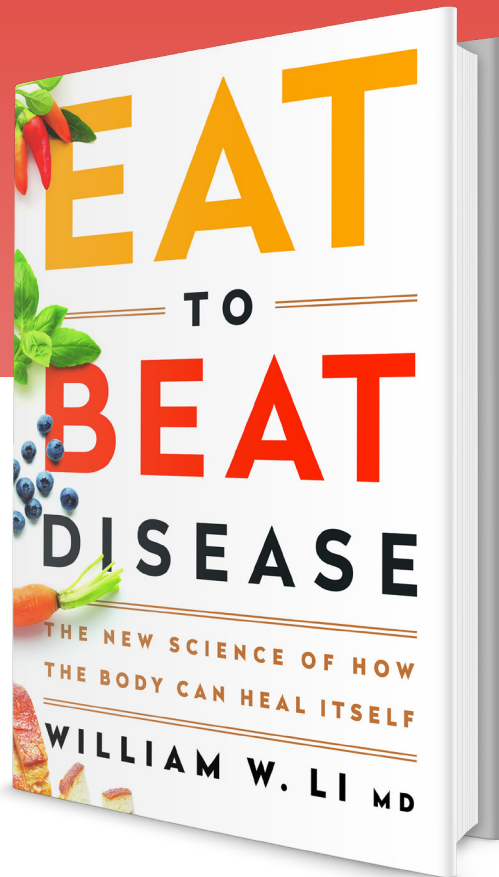
DIRECTIONS

In a food processor pulse the walnuts until they are coarsely chopped.

Add arugula, red miso, garlic, lemon juice, and vinegar.

With food processor running slowly add the oils until a paste forms.

Serve with pasta or sautéed or grilled vegetables.



EAT TO BEAT DISEASE

Forget everything you think you know about your body and food and discover the new science of how the body heals itself. Learn how to identify the strategies and the dosages for using food to transform your resilience and health in Eat to Beat Disease. We have radically underestimated our body's power to transform and restore our health. Pioneering physician scientist, Dr. William Li, empowers readers by showing them the evidence behind over 200 health-boosting foods that can starve cancer, reduce your risk of dementia, and beat dozens of avoidable diseases. Eat to Beat Disease isn't about what foods to avoid, but rather is a life-changing guide to the hundreds of healing foods to add to your meals that support the body's defense systems.



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