Cancer Prevention and Survivorship: Ten evidence-based nutrition and lifestyle choices to help prevent cancer or improve outcomes

by Miles Hassell MD

Good Food, Great Medicine
This is adapted from Good Food, Great Medicine, a Mediterranean diet and lifestyle guide and a practical, easy-to-read resource for anyone wanting to eat well without sacrificing eating enjoyment. Readers are offered both the evidence and the tools to help prevent or reverse heart disease and type 2 diabetes, improve cholesterol levels, control high blood pressure, reduce risk of stroke, dementia, and cancer, and lose weight without deprivation. The pages referenced here are from the third edition; for more details, see last page of this handout.

Cancer is a worrisome diagnosis for any of us to face, but there are many things we can do to reduce our risk – and if we do have cancer, we can improve our outcome and reduce side effects of therapy.1 A healthy diet and physical activity may even lower the risk of cancers with strong genetic associations such as BRCA-associated breast cancer.2 The subject is large and research keeps moving, but the evidence continues to favor the deliciously primitive fundamentals of the Mediterranean diet, which is good news for food lovers everywhere. Here are ten Mediterranean-flavored evidence-based cancer-fighting approaches to consider.

Ten steps against cancer
1. Eat Mediterranean
2. Eat good fat, not low-fat
3. Eat your pound of vegetables every day
4. Keep your grains whole
5. Eat beans and legumes most days
6. Eat red meat in moderation
7. Favor cultured dairy
8. Avoid sweets and sweet drinks
9. Get a waist
10. Exercise daily

1. Eat Mediterranean3

- The Mediterranean diet is associated with 40-60% less cancer – as well as marked reductions in type 2 diabetes, heart disease, stroke, and dementia.
- Eat raw or cooked vegetables and fresh whole fruit with every meal and snack, and include raw nuts and seeds, beans, and whole grains.
- Use extra-virgin olive oil as your kitchen oil.
- Include aged cheese and probiotic-rich plain yogurt and kefir as main sources of dairy.
- Eat more oil-rich fish like salmon and tuna.
- Eat unprocessed meat – like beef, lamb, pork, chicken, turkey, wild game, and organ meats like liver – and keep it to no more than ¼ of your plate.

2. Eat good fat, not low-fat

- The Mediterranean diet is not a low-fat diet! It is characterized by a pattern of good fat, like phenol-rich extra-virgin olive oil (which in several studies has been more beneficial against cancer than other forms of fat), avocados, olives, raw nuts and seeds (like sesame, sunflower, flax, and pumpkin), dairy (like whole-milk yogurt and aged cheese), and real eggs.
- Raw nuts, particularly walnuts, have also been associated with breast cancer risk reduction. Keep raw nut intake to 1–2 handfuls per day. Avoid roasted nuts – they do not have the same degree of benefit and are more likely to be eaten to excess.
- Up to 4 tablespoons of flaxseed meal daily may have benefit for breast and prostate cancer.
- Oil-rich fish like salmon, tuna, and sardines are other sources of good fat. Consider eating them a few times a week.

---

3 Sofi, F. AJCN 2010;92:1189-96

Sign up for our free monthly food and lifestyle newsletter at Goodfoodgreatmedicine.com
3. Eat your pound of vegetables\(^4\)
   - Evidence supports at least one pound each day. Aim for a goal of nine servings of vegetables and fruit in meals and snacks daily, with greater emphasis on vegetables than fruit. Whole, not juiced! Fruit juices lead to more diabetes and obesity, and juicing eliminates most phenolics, vitamins, minerals, and micronutrients.
   - Eat as wide a variety as you can. Fresh and raw is good, but cooked is fine and even preferable in some cases. (A well-known example of the benefits of cooking is the tomato, which should be cooked for the optimal absorption of the antioxidant lycopene.)
   - If you have a rocky relationship with vegetables, start with the ones you like, raw or cooked. Need more ideas? Read pages 159-196 in Good Food, Great Medicine, especially the section on roasted vegetables starting on page 169.
   - Some vegetables and fruits may be more beneficial than others. Aim for dark greens and anything in the cabbage family (like broccoli, Brussels sprouts, cauliflower, cabbage, and bok choy), as well as onions, garlic, mushrooms, berries, and citrus fruit.
   - Frozen vegetables and fruit can be almost as good as fresh, but read the labels of canned produce carefully to avoid sweeteners and other enhancements.

4. Keep your grains whole
   - An unprocessed whole grain is an exquisitely practical coalition of parts – the fibrous bran, rich germ, and starchy endosperm – each with a specific function and benefit. The bran fiber slows the absorption of starch, and both bran and germ supply most of the fiber, vitamins, minerals, healthy oils, and part of the protein. To get the most benefit from this magnificently-designed food, eat it in as intact a form as you can, or at least with as few processing steps between the whole grain product and the original grain. The bigger the particles of grain you eat, the more slowly and steadily they will raise your blood sugar as they are digested.
   - To give yourself the absolute maximum benefit, stick to grains that are either whole (like Easy Crock Pot Cereal on page 128 of Good Food, Great Medicine and Barley Salad on page 216) or minimally processed (like steel-cut oatmeal on page 129 or Tabbouleh on page 209). Replace white bread and white pasta with 100% whole grain products, and white rice with options like quinoa or brown rice. An ideal bread would be Breadzilla (page 252), or a heavy sprouted grain bread or European sourdough rye.
   - **READ INGREDIENT LISTS!** Look for the words 100% whole grain, but remember that even whole grain flour is rapidly metabolized because of the small particle size of commercially-ground flour. Also, the excessive processing of most commercially produced bread destroys micronutrients, alters fiber characteristics, and makes starches act more like simple sugars. For these reasons we suggest that you keep even 100% whole wheat bread to a minimum.

"Whole grain" breakfast cereals?
Avoid all ready-to-eat breakfast cereals, whether or not they are labeled “whole grain.” Once a grain has been roasted and crushed and made into a batter and extruded and steamed and puffed and dried and finished with spray-on vitamins and minerals and then boxed and left on a shelf for months, is it still a whole grain? TV commercials say it is. The manufacturer says it is. The box says it is. Even the ingredient list says it is. But has it retained the original whole grain benefit? Probably not. We don’t even know how to adequately measure the damage that has been done to the carbohydrate, the nucleic acids, the fatty acids, the vitamins, the minerals – and who knows what else? – after the repeated heating and extensive processing. Even when it’s 100% whole grain and without added sugar, the grains have been processed to such a degree that the starch molecules and fiber have been altered, and are far more likely to raise blood sugars and insulin levels.

5. Eat beans and legumes most days\(^5\)
   - This includes split peas, lentils, dried peas (like black-eyed peas, chickpeas), dried beans (like black, pinto, navy, white, red, soy), and fresh beans (like baby lima and green soybeans or edamame). Beans are a complete protein when eaten with whole grains.
   - As for soy, avoid soy milks (most of which contain added sweetening and other enhancements) and soy protein powders. Stick to traditional soy foods like edamame (fresh soybeans, found in many supermarket freezers), tofu, miso, and tempeh.

\(^4\) American Institute for Cancer Research 2007
\(^5\) Manios, Mediterranean Diet as Nutrition Education and Dietary Guide, Forum Nutr 2006
Soy is not magic, and it’s not a villain, either. It’s just another bean. In adolescent women it is associated with less lifetime risk of breast cancer. Also, women with breast cancer who eat soy may have better outcomes; the data are fuzzy.

6. Eat red meat in moderation
- Available research suggests that up to 24 ounces (uncooked weight) of unprocessed red meat (beef, pork, or lamb) per week is part of a healthy diet.
- Processed meat – ham, lunch meats, cured sausages, and so on – should be avoided.
- As we mentioned earlier, meat should kept to no more than ¼ of your plate. This should leave plenty of room on your plate for cancer-fighting vegetables.
- Grass-fed meat is probably superior; wild game like venison and elk might be even better.

7. Favor cultured dairy
- Dairy foods in their generally unprocessed form can be part of a healthy diet. The greatest historical evidence for benefit is for cultured dairy foods such as aged cheese, plain yogurt and kefir (a yogurt-like cultured milk drink) rather than milk itself.
- Two or three servings per day are probably a reasonable maximum, and should be enough to supply your calcium needs without a calcium supplement.
- I can’t make a strong case for either low-fat or whole fat dairy. However, a strong case can be made against sugar delivery systems disguised as dairy foods: for example, eight ounces of non-fat yogurt can include 6–8 teaspoons of added sugar, because even more sweeteners are added to make up for the missing fat! As usual, always read ingredient labels.
- Probiotic-rich plain yogurt and kefir (sweetened with fresh fruit and honey) contain live microorganisms that provide a health benefit. We like the locally-produced Nancy’s brand the best. Multiple mechanisms are involved that may be useful for cancer risk reduction, immunity, insulin resistance, diarrhea, lower cholesterol, inflammatory bowel disease, heart disease, and peptic ulcer.

8. Avoid sweets and sweet drinks
- Higher intake of concentrated sugars and starches appear to be associated with more cancer, worse cancer outcomes, diabetes, obesity, heart disease, and dementia. Some of the risk is likely due to higher insulin levels with increased sugar and starch load in the diet.  
- Reduce your sweet tooth. All sweeteners, natural and artificial, maintain our sweet tooth. Switching one sugar for another won’t improve our health, but reducing total sugar intake will.
- Sweet drinks include fruit juices (even natural unsweetened) and diet sodas. Calorie-free, artificially sweetened foods and drinks appear to contribute as much to obesity as the stuff with real sugar. Switch to chilled sparkling water, tea, or coffee. If you need a sweetener, use raw honey and use as little as you can.
- Read the ingredient label! Most meal replacement drinks and “protein bars” are very high in sugars/carbohydrates. If a food is designed for convenience, it is unlikely to be healthy. Grab an apple and a handful of raw almonds instead. Now that’s convenience! (See following page for our suggestion for a whole food meal replacement alternative.)
- Agave nectar is not a natural sweetener! In its typical form it is just another highly refined sugar chemically similar to high fructose corn syrup.

Natural sweeteners are better
- Fresh fruit is the best sweetener but is generally not sweet enough to be an efficient sweetening agent. Canned and dried fruit are higher-intensity sweeteners but both need to be carefully frisked for added sugar and chemicals. Check ingredients: even simple dried fruit often has added sugar. Remember that dried fruit is a concentrated source of sugar that should be eaten on a very limited basis, especially for anyone who is struggling with excess weight.
- Honey in its raw form is a truly unrefined sweetener. In fact, if you don’t mind herding bees, you can harvest your own honey and spin it straight from the comb. Also, even the mildest clover honey is flavorful enough to reduce chances of it being eaten in the same quantities as sugar.
- Molasses and pure maple syrup both have nutritional value, but should be used only as replacements for the more refined sweeteners. Like honey, they have significant flavors that tend to keep us from using too much at a time.

---

6 American Institute for Cancer Research 2007

Miles Hassell, MD © 2015
Meal replacement drinks
For patients with cancer who are struggling to get enough calories because of reduced appetite or nausea, or for post-surgical patients, or for elderly patients who have difficulty eating for various reasons, meal replacement drinks can be a valuable addition to the diet. However, good nutrition in liquid form can be difficult to find in a commercial product, and the evidence argues that a heavily processed formula high in simple sugars and excessive pro-inflammatory omega-6 fatty acids is more likely to suppress a good immune response.

A typical example is this ingredient list from a major brand of meal replacement drinks: Water, sugar (sucrose), corn maltodextrin, milk protein concentrate, soy oil, soy protein concentrate, canola oil, corn oil, natural and artificial flavors, soy lecithin, carrageenan, FD&C red #3.

The best nutrition is from whole food sources, with their huge spectrum of micronutrients including phenols and other anti-oxidants, nucleic acids, vitamins, minerals, fibers, healthy fats, proteins – and perhaps, just as importantly, those unknown nutrients that are present only in whole foods, and not in their semi-synthetic or highly-refined counterparts.

So, rather than buying meal replacement drinks, consider switching to simple home-made smoothies instead. By making your own yogurt and whole fruit smoothies you will get far less sugar, healthier fat, more whole food nutrients, and valuable probiotics for your immune system. Plus, you’ll save money.

There is an added bonus with smoothies in that anything you want to emphasize in the diet can be slipped in, including high-quality calories like extra-virgin olive oil or some added protein like an egg or some soft tofu. Smoothies can be made in large batches, put in single-serving jars, and stored in the freezer. (For more ideas and a master recipe, see pages 135 – 138 of Good Food, Great Medicine.)

Most people who eat a low-fat diet also eat more refined carbohydrates. When studied head-to-head against Mediterranean-style diets higher in fat, low-fat diets usually have worse outcomes for weight loss, blood sugar and cholesterol levels. Also, low-fat diets have not been associated with lower cancer rates in prospective trials.

9. Get a waist
- Excess weight increases your risk of cancer, cancer reoccurrence, dementia, diabetes, heart disease, and stroke. Aim for a waist less than 35 inches for women and less than 40 inches for men. (This guideline may be inaccurate for slightly-built people.)
- The weight you carry around your middle is more hazardous for heart disease, diabetes, and some cancers than weight elsewhere on your body. If you are overweight, general weight loss is not as important as being fit and losing inches around your waist.
- If weight is not coming off, minimize or eliminate potatoes, corn, rice, dried fruit, and all grain products and cereals, even if whole grain. (Even true whole grain bread may be a problem if you are not losing a pound a week.)
- If you are overweight, eating less may be the single most important piece of dietary advice. Eat smaller portions, and eat slowly, savoring your food. Try to stop eating before you’re full. Smaller plates are often helpful. Constantly re-think your ideas of portions. Too much food, even very good food, is still too much. If you are still hungry – eat some more vegetables. Eat whole fruit for dessert.

10. Exercise daily
When going through cancer therapy, exercise can be challenging, yet moderate activity can lessen fatigue and improve energy levels. But what do you do when the last thing you can imagine doing is exercise? Start with tiny doses like a 5-minute walk, or a few leg lifts, or using an exercise band – or simply being mindful to keep as active as your energy level allows. Some people are even able to maintain their regular exercise routines – everyone is different. (For more exercise ideas that may be helpful, see pages 50–55 in Good Food, Great Medicine.)
- Daily exercise is associated with less cancer as well as better survival in those with cancer.
- Studies also show that exercise during chemotherapy reduces fatigue and other symptoms associated with treatment.
- Brisk walking is one of the best-studied exercises – aim for 30–60 minutes daily, and break it up however it works best for you. Anything is better than nothing.
- If you tend to be sedentary, try to make a point of standing up and moving around frequently. Take the stairs whenever you can! Avoid TV!
Other thoughts

Minimize alcohol: Drinking alcohol is a balance between risk (particularly breast cancer) and benefit (reduced heart disease). Keep alcohol to 1 drink or less per day: this amount appears to be beneficial and does not increase risk of breast cancer recurrence.8 (A drink is about 5 ounces of wine, 12 ounces of beer, or 1½ ounces of spirits.) A diet high in folate-rich foods like spinach and lentils (not supplemental folic acid) likely reduces the cancer risk associated with alcohol.

Minimize nutritional supplements: These should be used rarely, with a very specific purpose in mind and with reasonable evidence. For example, vitamin E, beta carotene, and folic acid have been found to be associated with worse health in some carefully done studies, and calcium supplements seem to be associated with more heart disease.

Fish oil in the VITAL study was associated with lower rates of cancer; eating oil-rich fish 2-3 times per week has stronger evidence.

Vitamin D: The jury is still out, but it’s worth talking about. Our goal is typically 1,000-2,000 IU of vitamin D3 (cholecalciferol) daily to achieve adequate blood levels of 30–60 ng/ml. Sardines and salmon are good sources of vitamin D, and so is sunlight: having your arms and legs (and whatever else you feel like baring) exposed to the sun, without sunscreen, for about 20 minutes three times per week in sunny months may be enough for many people.

Eating well during cancer treatment

When dealing with reduced appetite, nausea, chemo brain, and overwhelming fatigue, it’s easy to turn to comforting and convenient refined carbohydrates. Even if you can only eat very little, however, make sure what you do eat is high-quality whole food. Extra calories may be necessary, but empty calories such as sugar and refined grains should be avoided. Include plenty of protein and good fat to help support your immune system and maintain muscle mass. A hot dish that combines high-quality protein, good fat, vegetables, whole grains, and minimal effort is Green Eggs and Rice (page 244 of Good Food, Great Medicine), which can be stored in serving-size portions for when you are ready to eat. Our patients who eat whole foods and stay active throughout treatment report fewer side effects (and bounce back sooner) than others who don’t use lifestyle medicine to the same degree.

Read ingredient lists, not Nutrition Facts

It is safe to say that most of the preceding advice is wasted if you don’t read ingredient lists. This is the most important information because it tells you exactly what is in the product. The Nutrition Facts panel, on the other hand, can distract us with “facts” that may not actually offer useful information about the food. The calorie count, for instance; to figure out how many calories we need and what our diet is actually supplying is not a simple calculation. Serving size and calorie counts tend to be inaccurate, and even if the calories are known, they are not necessarily fully absorbed. Whole nuts typically have 15–20% of their calories unabsorbed due to particle size, but refined carbohydrates – like bagels, sweet drinks, and alcohol – are very efficiently absorbed. So the caloric content of whole foods may be off by as much as 15%, making direct comparisons unreliable. To add to the confusion, Nutrition Facts speculate on “daily value” percentages. What do we do with information like “8% total carbohydrate”? Our bodies care more about the kind of carbohydrate – is it refined or is it naturally occurring in a whole food? The ingredient list will tell us by identifying the source.

Six foods to avoid

1. Avoid refined grains. This includes white rice and white flour and anything made with them, most breads, baked goods, cookies, crackers, pasta, ready-to-eat breakfast cereal, commercial granola, and items like energy bars.

2. Avoid refined sugar and sweet drinks. The problem of sugar can hardly be overemphasized. Concentrated sugars (including agave nectar, corn syrup, rice syrup, and so on) and sweet drinks are nutritionally bankrupt calories and major contributors to weight gain.

3. Avoid artificial sweeteners. These appear to carry similar risk as other sweeteners for obesity and insulin resistance, which in turn increase cancer risk. They also maintain your sweet tooth, making it harder to reduce sweets.

4. Avoid highly-processed fats and oils. This includes hydrogenated and partially-hydrogenated oils found in most margarine, vegetable shortening, commercially-fried foods, and many packaged foods. Also included are highly-processed vegetable oils like safflower, corn, peanut, soy, and canola. Most vegetable oils, unlike olive oil, are inedible when first extracted, so they are highly refined and

---

A whole food Mediterranean diet

Here is a brief review of what we call a whole food Mediterranean diet. This whole food version combines conventional Mediterranean diet concepts with minimally processed foods that have their nutrients largely intact.

- **Eat vegetables with every meal or snack.**
  Also include whole fruit, whole grains, beans and legumes, raw nuts, and seeds. The greatest benefit appears to be associated with vegetable intake. Try to make vegetables, raw and/or cooked, part of every meal, and fresh fruit for dessert.

- **Eat whole grains and beans daily.**
  Although the contemporary Mediterranean diet includes white rice, white bread, or white pasta, the whole food version replaces them with their 100% whole grain counterparts. Beans and legumes can be home-cooked or canned – but if canned, read ingredient lists!

- **Use extra-virgin olive oil as main fat.**
  We suggest replacing most other oils and fats with extra-virgin olive oil, including for all cooking purposes. (See page 26 of *Good Food, Great Medicine.*) Extra-virgin olive oil is also associated with less cancer. Second best is virgin coconut oil and modest amounts of butter.

- **Eat plenty of fish.**
  Oil-rich fish are especially high in omega-3 fatty acids and other valuable nutrients – salmon, sardines, and light tuna, for example. Keep portions of other animal proteins smallish, taking up no more than ⅓ of your total plate area. Think of meat as a condiment rather than the main part of the meal. Save your appetite for the most important food – vegetables and beans!

- **Eat cultured dairy.**
  This includes plain yogurt and kefir (a yogurt-like drink) and cheese. Yogurt and kefir are also a good source of probiotics (microorganisms that benefit the gut), but remember to buy them unsweetened and sweeten them yourself with fruit or raw honey. Most authorities recommend low-fat dairy foods but we are not aware of good data showing that low-fat dairy is preferable to full-fat dairy.

- **Drink small amount of wine,** generally with meals. (See page 5 of this handout.)

---

Need alternatives to refined carbohydrates?
Try these from *Good Food, Great Medicine.*

**Ready-to-eat breakfast cereals?**
- We talk about these on page two of this handout. Try replacing with the homemade granola or muesli on page 131. Check out other breakfast options on pages 128–134.

**White rice?**

**Pre-sweetened yogurt?**
- Buy plain yogurt and sweeten with honey and fresh fruit. (See pages 32 and 135.)

**Bread?**
- The coarser the grain, the better! (See pages 23–25 for more details.) However, if you need to watch your weight, avoid bread and pasta as much as possible – even whole grain versions. Or make your own: *Breadzilla* (pages 252–253) is a heavy European-style loaf that is metabolized so slowly that blood sugar is barely affected. See pages 247–266 for tips and other bread recipes.

**The bottom line**

A whole food Mediterranean diet and daily exercise are associated with 40–60% less cancer and improved cancer outcomes – *and* marked reductions in type 2 diabetes, heart disease, stroke, and dementia. In my practice, patients who take these steps appear to have reduced side effects from conventional cancer therapies. Good diet and lifestyle choices do not substitute for conventional cancer therapies, but they are wise additions to any treatment your oncologist recommends.

---

Miles Hassell MD is an internist in private practice at Providence St. Vincent Medical Center in Portland, Oregon, where he lives with his wife Anna and son Tor. He was born in Seattle, Washington, and was raised in Perth, Western Australia, receiving his medical degree from the University of Western Australia. He completed his residency in Internal Medicine at Providence St. Vincent Medical Center.

Dr. Hassell is Medical Director of the Integrative Medicine Program at Providence Cancer Center in Portland and a clinical instructor in the training of Internal Medicine residents, twice named Outstanding Teacher of the Year. He also lectures widely to physician groups about the appropriate integration of lifestyle and conventional medicine, and is often interviewed on health issues by local television and radio. He is the co-author of Good Food, Great Medicine, an evidence-based guide to using a whole food Mediterranean diet in the pursuit of optimal health. In his private practice Dr. Hassell encourages the vigorous use of evidence-based food and lifestyle choices and has several times been chosen as one of Portland’s Top Doctors. Dr. Hassell is available for individual consultations for diagnosis, second opinion, or to develop patient-centered solutions using evidence-based conventional and lifestyle interventions.

Good Food
Great Medicine

Third Edition
Miles Hassell MD
Mea Hassell

a Mediterranean
diet and lifestyle guide
to eating well

The 288 easy-to-read pages present powerful medical evidence to support adopting a whole food Mediterranean diet-and-exercise based lifestyle, with 185 simple-to-follow recipes using everyday ingredients. The 14-step Risk Reduction Action Plan helps:

- prevent or reverse heart disease and stroke, type 2 diabetes, insulin resistance, and metabolic syndrome
- improve cholesterol and blood pressure with fewer drugs
- lose weight without deprivation
- reduce dementia and cancer, and improve cancer survivorship

This is a practical resource for anyone looking for an evidence-based approach to eating well without sacrificing eating enjoyment.

(Available at: Amazon, Powell’s Books, Annie Bloom’s Books, Multnomah-Clackamas-Washington-Clark County Libraries, and Providence Integrative Medicine Program.)

For bulk discounts or questions call 503.291.1777.

Sign up for our free monthly food and lifestyle newsletter at Goodfoodgreatmedicine.com