

An Evidence-based Guide to Successful Waist Loss, *and* Preventing or Reversing Insulin Resistance *and* Type 2 Diabetes



by Miles Hassell MD

This handout presents an evolving discussion on improving overall health, and is in three parts:

- In the first section we will discuss the interconnected world of waistlines, blood sugar, blood pressure, HDL cholesterol, triglycerides, insulin resistance, the overworked pancreas, and type 2 diabetes.
- Next we will present the evidence for a Mediterranean-style diet for optimal health.
- Then we will focus on the nuts and bolts of food, exercise, and lifestyle modification.

Keep reading if you have any of these:

- Excess weight, especially around the waistline.
- The metabolic syndrome or insulin resistance.
- Pre-diabetes or type 2 diabetes, who wish to improve blood sugar control with less medication, or even to reverse diabetes.
- A desire to avoid diseases associated with insulin resistance and diabetes, including stroke, heart attack, dementia, cancer, fatty liver, and nerve, kidney, and eye damage.
- Risk factors such as high blood pressure, low HDL (good) cholesterol and high triglycerides.

Why is the waist so important?

One of the most important statistics to consider in any discussion of insulin resistance or diabetes risk factors is your waist measurement at the belly button. Excess inches around the waist can mean increased fat in and around your abdominal organs (visceral fat) including your liver (fatty liver), the heart, muscles, and tendons. These unusual forms of fat deposition appear to be related to higher levels of inflammation, hormonal dysregulation, and injury to every organ system. Visceral fat is also associated with more diabetes, cancers, heart disease, atrial fibrillation, high blood pressure, high cholesterol, dementia, liver cirrhosis, acid reflux (GERD), osteoarthritis, sleep apnea, chronic fatigue, and chronic pain.

Good Food, Great Medicine

These pages have been adapted from *Good Food, Great Medicine* (4th edition), a Mediterranean diet and lifestyle guide. It is a practical, easy-to-read resource for anyone wanting to eat well without sacrificing eating enjoyment, with cooking tips and over 200 easy-to-follow recipes. 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 . . . and keep it off. (For more food and lifestyle resources see goodfoodgreatmedicine.com.)

What is the metabolic syndrome?

“Metabolic syndrome” is defined by the presence of three or more of the following conditions:

- **Fasting blood sugar** greater than 100mg/dl or being treated for high blood sugar
- **HDL (good) cholesterol** lower than 40mg/dl for men and 50mg/dl for women
- **Triglycerides** greater than 150mg/dl
- **Blood pressure** greater than 135/85 or being treated for high blood pressure
- **Waistline** greater than 35 inches for women and 40 inches for men, or less for small-framed people. Essentially, this means people with excess fat at their waistline, which is a marker of visceral fat

These elements of metabolic syndrome are markers of a related abnormality called “insulin resistance.”

What is insulin resistance?

People with insulin resistance have extensive hormonal dysregulation, including requiring more insulin than normal to allow glucose, the major fuel that allows our body to operate, into our cells. As insulin resistance worsens, blood sugars will tend to rise until there is eventually a diagnosis of type 2 diabetes. By the time diabetes is diagnosed, it is estimated that 80% of the beta cells – the cells in the

pancreas that make insulin – have been lost, so there are many reasons to intervene as soon as insulin resistance or the metabolic syndrome have been identified. The sooner we reverse insulin resistance, the less damage there will be to the pancreas and other organs.

Goals

- **Improve long-term health** by dramatically reducing the risk of disability and complications associated with obesity and diabetes while also reducing risk factors such as cholesterol levels, triglycerides, and blood pressure.
- **Bring blood sugars to normal or near-normal levels using food and exercise choices**, thus reducing or eliminating the need for blood sugar medication. Studies using drugs to lower blood sugar have shown little benefit for common complications such as heart attack.¹ *The advice on the following pages also may help control blood sugar in patients with diabetes who are not overweight.*
- **Make daily exercise a non-negotiable priority.** Fitness is the only factor that competes with the Mediterranean diet for keeping people alive and vital, particularly those with diabetes.² The primary keys to weight loss are still food choices and portion control, but daily exercise also protects against heart disease, stroke, cancer, osteoporosis, arthritis, dementia, and depression.
- **Reduce insulin resistance and waistline by moving to a modified Mediterranean diet.** The Mediterranean diet is associated with sustainable weight loss – see next section. Diabetes-friendly modifications to the Mediterranean diet are discussed on pages 3-4.

Why Mediterranean?

Higher-fat Mediterranean diets versus low-fat, vegan, and vegetarian diets

Studies show that the higher-fat Mediterranean diet pattern is more effective than other diets for achieving:

- Sustainable weight loss.^{3,4}
- 50% less risk of type 2 diabetes for those eating a Mediterranean diet compared to a low-fat diet.⁵

- Lower blood sugars in people with type 2 diabetes who eat Mediterranean-style diets than in those eating other diets, including vegetarian and vegan diets.^{3,6}
- Better cholesterol and blood sugar, and less inflammation levels compared to low fat diets.⁷
- Lower rates of heart disease, stroke, dementia, cancers, and total mortality.⁸

Five Mediterranean Diet studies

1. Reducing future heart attacks and death in patients with heart disease:⁹ The Lyon Diet Heart Study randomized men who had already had a heart attack to either a prudent low-fat diet or a Mediterranean diet for 4 years. The Mediterranean diet group had **72% fewer major cardiac events, 56% fewer deaths and 61% fewer cancers.**

2. Reducing risk of first heart attack or stroke:¹⁰ The PREDIMED study randomized 7,447 people without heart disease to either a Mediterranean diet or a prudent low fat diet for 4.8 years. The Mediterranean diet showed a **30% reduction in cardiovascular disease, and 40% reduction in stroke.**

3. Preventing type 2 diabetes:⁵ The PREDIMED-Reus study randomized people at risk of developing diabetes to either a prudent low-fat diet or a Mediterranean diet. **There was a 51% reduction in the risk of diabetes for those on the Mediterranean diet.**

4. Improving blood sugar control in patients with type 2 diabetes:¹¹ Compared to low-fat, American Diabetes Association, vegetarian, and vegan diets, the Mediterranean diet provided better blood sugar control for people with type 2 diabetes.

5. Reducing risk of cancer, dementia and total mortality:⁸ In a meta-analysis of prospective studies, the Mediterranean Diet was also associated with less cancer, neurodegenerative diseases such as Parkinson's disease and dementia, and total mortality.

¹ Boussageon, R. et al. BMJ 2011;343:d4169

² McCauley, P. et al. Diabetes Care 2007;30:1539-43

³ Shai, I. et al. NEJM 2008;359:229-41

⁴ McManus, K. et al. Int J Obesity 2001;25:1503-11

⁵ Salas-Salvado, J. et al. Diabetes Care 2011;34:14-9

⁶ Ajala, O. et al. AJCN 2013;doi:10.3945

⁷ Nordmann, A. Am J Med 2011;124:841-51

⁸ Sofi, F. et al. AJCN 2010;92:1189-96

⁹ Lorigeril et al. Circulation 1999;99:779-85

¹⁰ Estruch R. et al. NEJM 2013;doi:10.1056

¹¹ Ajala, O. et al. AJCN 2013;doi:10.3945

How to evaluate diets

We know of no other dietary model with study data showing health improvements comparable to the Mediterranean diet studies we cite. When evaluating recommendations for any dietary approach (high-fat, low-fat, no-fat, gluten-free, low-carbohydrate, no-carbohydrate, keto, vegetarian, vegan, paleo, and so on), take a careful look at the medical evidence – in particular, at the number of people in the study, the methods used, the length of the study, and the specific disease outcomes, including death. Of course, *any* diet encouraging us to eat more whole foods and less refined carbohydrates is going to point us in the right direction. The DASH diet,¹² for example, differs in some regards from these recommendations, but still works well.

What to avoid – guidelines for everyone

If we were to reduce these pages to just one piece of advice, it would be to avoid everything on the following list. We'll discuss these in more detail on the following pages.

1. **Sugar and sweeteners**, natural and artificial.
2. **Sweet drinks**, like 100% fruit juice, calorie-free drinks, "vitamin water," sport drinks, smoothies.
3. **Highly-refined grains**, including breads/pastas containing white flour, white rice, instant oatmeal, cold breakfast cereals, and grits.
4. **Highly-processed fats and oils**, like partially hydrogenated and hydrogenated oils found in most margarine, vegetable shortening, commercially-fried foods, and packaged foods.
5. **Preserved meats** like bacon, ham, deli meats, sausages, hot dogs, and so on. These processed meats are associated with significantly more type 2 diabetes and heart disease.¹³
6. **Processed, fake, or highly-altered foods** like commercial egg, butter, milk, and meat substitutes, non-dairy creamer, and artificial sweeteners, flavors, and colors.

The carbohydrate factor

Carbohydrates are made up of various kinds of sugar molecules, and can be simple (like sugars) or complex (such as starches in grain). The type of carbohydrates that we should *all* be concerned about is the concentrated carbohydrate in refined grains (white flour, white rice, and so on), sweets, and sweet drinks. In excess, these disturb our metabolism, raise triglycerides, and create fat deposits specifically in the most dangerous places – deep within the abdomen (visceral fat) and almost everywhere else, including the heart. Carbohydrates found in unprocessed foods like whole grains and potatoes are not a problem for most of us, but people with insulin resistance, obesity, and metabolic syndrome may need to use caution even with these whole foods. (See *Modifications for high-risk people* on the next page.)

Overview: a whole food Mediterranean-style diet¹⁴ modified for weight loss, insulin resistance, and type 2 diabetes

Because of the difference in the carbohydrate effect as well as individual risk factors, dietary recommendations cannot be one-size-fits-all. The main difference you will see when comparing the modified diet with these whole food Mediterranean guidelines is the recommendation to reduce grains (including whole grains), potatoes, and high-sugar fruit, **if weight loss and blood sugar, insulin, and triglyceride management is a priority**, at least until weight and blood sugar goals have been met.

- **Eat lots of vegetables**, especially the dark green leafy vegetables like kale and collards, as well as **whole fruit, beans, lentils, and raw nuts and seeds** – like sunflower, sesame, pumpkin, and flax.
- **Eat good fat, not low-fat.** Use extra-virgin olive oil as your main cooking oil, replacing most other oils and fats. Use butter, not margarine. Eat raw nuts and seeds, avocados, and other healthy fats.
- **Eat plenty of fish, and include other protein in the form of unprocessed meat and poultry.** This includes beef, lamb, pork, chicken, turkey, wild game, and organ meats like liver, all sources of high quality protein, but treat meat as a condiment, not the main part of the meal. Keep meat portions no larger than 1/3 of your total plate.

¹² Ard, J.D and Svetkey, L.P J Clin Hypertens 2000;2:387-91

¹³ Micha, R. et al. Circulation 2010;121:2271-83

¹⁴ <http://www.oldwayspt.org/>

- **Eat cultured dairy**, like plain (unsweetened) yogurt, kefir (a yogurt-like drink), and aged cheese. Use whole or 2% dairy products, as they seem to have less effect on blood sugar than fat-free.
- **Drink a small amount of alcohol most days.** Keep to 5 ounces of wine daily, with meals. Alcohol in small quantities is associated with a lower risk of diabetes, heart disease, stroke and dementia. Avoid mixed alcoholic drinks – the calorie and sugar content is typically very high.

Modifications for high-risk people:

These three food categories are best avoided when weight loss or blood sugar control is a priority.

- **Avoid all grain products and cereals, even if whole-grain.** (See page 7 for a three-part approach to whole grains.)
- **Eat more vegetables than fruit.** Fruit is naturally carbohydrate-rich and therefore more likely to disrupt blood sugar and insulin levels. Berries, apples, pears, and citrus fruits are probably the best fruit choices. (See pages 8-9.)
- **Minimize some vegetables**, especially potatoes. In general, root vegetables tend to be more carbohydrate-rich. (See page 8.)

How to get started

First, remind yourself why you want to change:

- To feel better and have more energy.
- To spend more time *living* and less time in the doctor's office or hospital.
- To have a better life 10 years from now than you would have if you didn't change.
- To reduce or eliminate your need for prescription medications.
- To keep disease-caused disability from robbing you of your independence.
- To reduce your risk of heart disease, stroke, cancer, and dementia.

This is not a diet! Keep in mind that the approach to eating described in this handout is not just a temporary program to lose weight or feel better. It is a new way of life for some, and a return to good sense for others. A key to success is our willingness to make the changes necessary for the food-as-medicine strategy to work.

Change is challenging

Change is difficult for most of us. Momentum carries us in the same direction day after day, and altering that course is difficult. As you build new habits, it gets easier. What works for one person, however, may be different for another, but no step is too small. Be open to new ideas and new foods.

Be prepared to invest more time. In the beginning you may find you need to carve out time from other things in order to spend more time in your kitchen preparing your own food. As with any new routine, the time investment will shrink as you get more efficient. Some like to cram the shopping and chopping and organizing a week of meals into one day, others like to spread it out. *But* – one common denominator to success is planning ahead.

Find a health revolution buddy. This should be someone who knows you well and is still a friend! They need to feel free to be blunt and to keep you accountable. It could be a family member, a neighbor, or maybe your doctor, but it should be someone who is on board with the evidence-based approach we've been discussing, and who can help find solutions to challenges that will come up.

Find solutions, not problems. Don't whine! Concentrate on *solutions* when difficulties arise. If your knees hurt when you try to walk more, that's not an excuse to quit. Work on a solution, like a simple set of trekking poles or an appointment with a physical therapist. Gained 2 pounds? Well, last week you lost a pound. You did it before and you can do it again! Bad weather? Nice try. Here in the wet Pacific Northwest we say there is no bad weather, just the wrong gear.

Choose to be mindful. Habits are easy to make but hard to break. Be aware of each bite. Avoid eating when you are distracted, driving, or being entertained. Be alert to triggers to mindless eating in your life.

Consider the alternatives. If you find yourself grumbling about how much more time it takes to be healthy, remind yourself how much longer everything would take after you've had a stroke.

Recommendations for weight loss and preventing or reversing insulin resistance and type 2 diabetes

1. Reduce your sweet tooth – avoid sweets, artificial sweeteners, and sweet drinks
2. Avoid liquid calories
3. Avoid grains, even whole grains
4. Eat beans and legumes often
5. Aim for 9 servings of vegetables and whole fruit daily – but more vegetables than fruit
6. Eat your vegetables first
7. Minimize high-starch vegetables
8. Eat *whole* fruit – but some might be better than others
9. Eat good fat (not low-fat) + protein + fiber with *every* meal or snack
10. Eat breakfast and don't skip meals
11. Include unsweetened cultured dairy
12. Don't be misled by "low-fat" labels
13. Read ingredient lists!
14. Watch out for processed foods that seem healthy – but aren't
15. Plan tomorrow's meals and snacks TODAY!
16. Monitor portion sizes and eat slowly
17. Exercise daily
18. Weigh weekly and keep a food journal
19. Schedule 7 – 9 hours of sleep
20. Cut screen time (TV, computer)
21. Avoid eating out – fix your own food!

How strict do I need to be? How strict you choose to be depends on your particular medical profile. If you have a high-risk waistline, diabetes, or high triglycerides, it would make sense to go with the strict approach until your blood sugar and weight have been controlled for about six months. Then you can consider returning to a more relaxed whole food Mediterranean diet.

What about special occasions? Once again, it depends on your risk level – and how you define special occasions! If you find that special occasions occur frequently, and you are not making progress with weight or blood sugar control, we would suggest a tightening of your definition of "special." Happily, many of us find that the better our progress, the less the temptation to indulge.

1. Reduce your sweet tooth – avoid sweets, artificial sweeteners and sweet drinks

Higher intake of these concentrated sugars appears to be associated with more diabetes, obesity, heart disease, dementia, cancer – and worse cancer outcomes. Sweets are high in calories, which lead to weight gain and high blood sugars. They also are sources of mostly empty calories, which means that they supply weight-gaining sugars and starches but offer little or no nutrients to build healthy cells, muscle and immune systems. The good news? The less sweet things we eat, the less sweet things we crave. Sweet drinks include fruit juices (even unsweetened) and diet sodas. **Calorie-free, artificially sweetened foods and drinks appear to contribute just as much to obesity and heart disease as the stuff with real sugar.** The sweet category also includes "meal replacement" drinks and protein/energy bars, which are high in sugars and carbohydrates. Read the ingredient lists! Here are five reasons to avoid or eliminate sweets:

1. Sweets contribute to weight gain, insulin resistance, high blood sugar, high triglycerides, and high blood pressure.¹⁵
2. Sugars and refined carbohydrates (essentially starches that behave like sugar in our body) do not suppress the appetite as well as proteins and fats, making it easier to gain weight.¹⁶
3. Excess sugars and refined carbohydrates tend to get converted to belly fat. This is why many people – including an increasing number of teenagers – who do not seem overweight nevertheless have a tummy, a high body-fat percentage, and often a fatty liver.
4. Eating sweet foods apparently changes the way our brains respond to non-sweet foods and reduce our enjoyment. Add the fact that we are hard-wired from birth to love sweets and starches, and it's not a pretty picture.
5. Eating sweets maintains our sweet tooth.

Even sugars with a relatively low glycemic index like agave and high-fructose corn syrup appear to contribute to weight gain and diabetes risk. Keep in mind that agave nectar is just another highly refined sugar – very much like high-fructose corn syrup. If you need a sweetener, raw honey is probably the optimal unprocessed sweetening option. However,

¹⁵ Brown, I. et al. Hypertension 2011;57:695-701

¹⁶ Westerterp-Plantenga, M.S. Annu Rev Nutr 2009;29:21-41

use as little of *any* sweetener as possible. Need to use sugar in a recipe? Use plain old brown or white sugar. When it is a small part of the diet, it's not a big deal – but remember that most recipes call for up to *twice* the sugar needed!

By the way, dark chocolate is legal if over 70% cocoa content and better if over 85% – the higher the cocoa percentage, the lower the sugar content. It is also associated with better health outcomes but limit your dose to no more than one ounce per day.

Identify added sweetening – check ingredient list!

Sweeteners have lots of names: evaporated dried cane juice, cane juice crystals, raw unrefined sugar, fructose, dextrose, glucose, maltose, maltodextrin, sorbitol, mannitol, erythritol, stevia, corn syrup, brown rice syrup, malt extract, molasses, fruit juice concentrate, agave nectar, honey, maple syrup and so on. **Whether these are organic or “natural” is meaningless as far as your health is concerned.**

▪ Note where sweeteners appear.

Ingredients are listed in their order of prevalence, so products may add several kinds of sweetening to push them further down the list. However, it's the total amount of sweetening that should concern us.

▪ Is this sugar better than that sugar?

All sweeteners, natural and artificial, maintain our sweet tooth. Although some sugars (like raw honey) are better than others, simply switching sugars is not going to improve our health. Reducing sugars, however, *will* make a positive difference.

▪ Added or naturally-occurring sugar?

Examples of naturally-occurring sugar are lactose in yogurt or fructose in whole fruit. These are – in most cases – not a concern. The various whole-food nutrients that accompany those sugars in the natural food blunt the effect of the sugar on your metabolism. It's the *added* sugar that we are really trying to avoid, and you can see if that is present by reading the ingredients label. One of the interesting things about low-fat products is that they usually have more sweetening added than their high-fat versions. The irony is that the presence of fat helps suppress the rise of blood sugar – for example, sweetened fat-free yogurt disturbs blood sugar far more than sweetened full-fat yogurt! **Naturally-occurring fat and sugar are always better than added fat and sugar. ALWAYS.**

Sorry – calorie free ain't free

Calorie-free alternatives to sugar are not the answer to insulin resistance or obesity. We suggest avoiding non-nutritive sweeteners as a class – even so-called “natural” ones – for three main reasons:

- Sugar substitutes maintain our sweet tooth.
- Sugar substitutes may be as closely linked with obesity, diabetes, heart disease, and poor health as is real sugar.^{17,18}
- Artificially-sweetened products – drinks, salad dressings, syrups, desserts, and so on – are usually nutritionally-compromised in other ways. Read ingredient lists to see for yourself.

2. Avoid liquid calories

This includes all juices (even fresh-squeezed), smoothies, coffee drinks, “meal replacement” drinks, energy drinks, alcohol, and sodas (even calorie-free). Not only are these calorie-dense, but liquid calories are simply not as satisfying as solid food so they are easier to consume to excess. Solid food that you have to chew makes you feel more satisfied than the same food in a liquid state.¹⁹

- As we have mentioned, calorie-free, artificially-sweetened foods and drinks appear to contribute *just as much* to obesity as those sweetened with real sugar.
- Soups and smoothies may be packed with readily-digested carbohydrates which will quickly raise your blood sugar. Avoid them.
- Most smoothies have too much fruit sugar and too little good fat to be a safe bet.
- Milk is okay in small quantities to lighten coffee and tea, but not in glass-sized quantities.
- Best liquid options? Water, chilled sparkling water (flavored or plain, but not sweetened), tea, or coffee.
- Alcohol is a calorie-dense liquid! Drink only with meals. Red wine appears to have the best evidence for benefit; avoid sweet wines. Keep alcohol to 5 ounces of wine daily, with food.

Coffee and tea are healthy!

It is worth noting that coffee and tea are associated with a number of health benefits, including reduced diabetes risk.²⁰ **However**, coffee drinks with syrup and milk substitutes do not belong in the hands of anyone trying to prevent or reverse diabetes. Coffee should be just coffee, maybe with some whole milk

¹⁷ Green, E. *Physiol Behav* 2012, DOI:10.1016/j.physbeh.2012.05.006

¹⁸ Swithers, S. *Behavioral Neuroscience* 2008;122:161-73

¹⁹ Martens, M. et al. *Obesity* 2011;19:522-7

²⁰ Floegel, A. et al *AJCN* 2012;95:901-908

or real cream. That's it. If you usually sweeten your coffee or tea, slowly reduce the amount of sweetening you use until you can enjoy them unsweetened. Drinking unsweetened liquids can also help suppress hunger and mindless eating.

Avoid juices, even fresh-squeezed

Juice should neither count as a serving of fruit or vegetables, nor as an example of whole food. There's nothing natural about removing and discarding the most valuable part of the fruit.

- Juices – even 100% – are poor sources of nutrients. While whole fruits and vegetables are perfectly packaged with fiber and nutrients intact, a glass of juice delivers the concentrated carbohydrates and sugar from 4–6 pieces of fruit, minus the most valuable nutrients and fiber.
- Juices are associated with increased obesity in general and are a major cause of obesity in children. Even 100% juice should be considered borderline junk food, especially for kids with picky appetites.

3. Avoid grains, even whole grains

These are best avoided when you are trying to lose weight or improve blood sugar control. Does this really mean 100% whole wheat bread? Yes. The problem is that the tiny particle size of finely-ground commercial whole wheat flour tends to have a similar effect on blood sugar, insulin response, and obesity as white flour. This is why it is best for all of us to keep the grains in our diet whole rather than ground. Avoid brown rice and oatmeal, too? Again, yes. Many otherwise-healthy carbohydrates need to be avoided when weight and blood sugar control are priorities. Grains have too much rapidly-metabolized starch for most people fighting insulin resistance, diabetes, and weight. If this sounds like you, it would probably be wise to avoid grains until you have achieved your weight and blood sugar goals. It may be hard, but this is war. **Many have found that it is the key that finally unlocks the door to weight loss and diabetes reversal.**

Think of grains in three groups:

- a. Highly-refined grains
- b. Moderately-processed whole grain
- c. Intact whole grains

a. Highly-refined grains

This includes any product made with white flour (also called *wheat flour*, *enriched flour*, and *unbleached white flour*) and other highly-refined grains. In this group fall most bagels, baguettes,

focaccia, pasta, pizza, pancakes, pastries, pretzels, chips, crisps, crackers, cookies, doughnuts, scones, and muffins. Also implicated are white rice, grits, polenta, tortillas (corn or flour), instant oatmeal, cream-of-wheat, ready-to-eat breakfast cereals, and almost all granola/energy bars. These foods are all nutrient-poor and calorie-rich, and act pretty much like congealed glucose in your body. *Everyone should avoid these refined carbohydrates.*

The whole grain conundrum

The recommendation that shocks patients with insulin resistance or diabetes the most is our suggestion to avoid even whole grain products. After all, aren't high-fiber whole grain products such as whole wheat bread, steel cut oats, and brown rice associated with less obesity and diabetes than refined grains like white bread and white rice? Yes they are. But there is an important additional truth that we think is vital. Most people struggling with excess weight, insulin resistance, and diabetes typically have metabolisms that cannot easily handle the high starch (carbohydrate) loads that even whole grain products contain. Intact whole grains may be an exception, and we discuss them further on.

b. Moderately-processed whole grain

This means any product made from ground, rolled, chopped, flaked, toasted, or puffed whole grain. This includes the whole grain versions of pasta and couscous, crackers, bread, and any other baked goods that are labeled "whole grain." Also in this group are stone-ground cornmeal, bulgur (wheat that has been crushed, parboiled, and dried), brown rice cakes, puffed grain cereals, and rolled grains and products made from them, like muesli and granola. Although only moderately processed, these foods still have rapidly-metabolized starches which have a surprisingly similar effect on blood sugar as highly-refined carbohydrates. Even though they are technically whole grains, their processing has damaged or destroyed nutrients with heat, oxidation, and storage time.

There is another more subtle downside that should be considered when using products made with whole-grain flour: even bread made with 100% whole grain flour is processed so quickly by our bodies that it has essentially the same impact on blood sugar and insulin response (and places almost the same burden on the pancreas) as white bread or plain sugar. For people without risk factors, these whole grain products are probably okay eaten in modest amounts as part of a vegetable-rich

Mediterranean-style diet. *However, people who are overweight or have diabetes, insulin resistance, or high triglycerides, should consider eliminating these whole grain foods entirely until their blood sugar and weight have been well-controlled for about 3 – 4 months. These foods may then be able to be reintroduced in small quantities.*

c. Intact whole grains

This means grain that looks like it just came out of the farmer's field. Common examples include whole (unpearled) barley, wheat and rye berries, oat groats, millet, and brown rice. (Brown rice is vastly superior to white rice,²¹ but, because of the types of starch it contains, even brown rice is best avoided by those fighting insulin resistance or diabetes.) Quinoa and buckwheat groats are not technically grains, but would be included here. Examples of intact whole-grain recipes would be the whole grain crockpot cereal recipe on page 214 or the barley salad on page 218 of *Good Food, Great Medicine* – 4th edition. Because the bran, germ, and endosperm of the grains are still intact, they are more slowly metabolized. However, they still have high carbohydrate content and should be eaten with caution. *If you aren't meeting weight loss and blood sugar goals, you probably need to give up even these intact grains, at least temporarily.*

4. Eat beans and legumes often

Beans and legumes seem to have a much lower impact on weight gain, insulin, and blood sugar than whole grains, and are a great way to add vegetable protein. Ideally, cook the dry beans or lentils yourself, and avoid eating the commercially prepared versions. Frozen beans like baby lima beans, black-eye peas, and green soybeans (edamame) are great for quick meals. (Try the *Luscious Limas* or *Seductive Soybeans* on pages 209 and 210.) If you buy canned beans, be careful to read the ingredient labels to avoid added sugar and fats.)

5. Aim for 9 servings of vegetables and whole fruit daily – but more vegetables than fruit

Get into the habit of having some **with every meal and snack**, including breakfast. Brighten flavors with the help of *Rich Yogurt Aioli* or *Garlic and Mustard Vinaigrette* (pages 156 and 154) or the like. Make a

point of including the dark green leafy vegetables like kale, spinach, and chard. Eat your vegetables *whole*, not juiced – juicing eliminates most phenolics, vitamins, minerals, and micronutrients. Frozen vegetables can be almost as good as fresh, but read labels of canned or pickled produce carefully to avoid sweeteners and other enhancements.

6. Eat your vegetables first

There are a few reasons for this: for one thing, they taste best when you're hungry. Also, eating the grilled meat on your plate first will tend to blunt your appetite and make it harder to enjoy the vegetables. Eating your vegetables first will also help you feel satisfied sooner, making it easier to resist seconds of something more calorie-dense while helping you get maximum daily servings of vegetables, with all their health benefits.

7. Minimize high-starch vegetables

Starchy vegetables are high-carbohydrate foods and raise blood sugar quickly, especially when cooked. This includes root vegetables, of which potatoes are the worst offenders – particularly mashed potatoes. Carrots, yams, and sweet potatoes appear to be the most forgiving root vegetables for those with insulin resistance, but keep serving sizes small even for those (½-cup or less at a time). Vegetable juices are sources of concentrated carbohydrates that should also be avoided. Corn – although not a vegetable but a grain – is also in the high-starch category.

8. Eat whole fruit – but some might be better than others

We discuss the reasons to avoid all fruit juices – even freshly squeezed – on page 7. However, for the person struggling with obesity or high blood sugar levels, it might be wise to consider limiting even whole fruit, particularly the higher-sugar fruits like bananas, mangos, grapes, and pineapple. Apples, pears, berries, and citrus fruits appear to be the best choices for people trying to control blood sugar. All dried fruit is a source of concentrated sugars and should be avoided. The exception is dried prunes; they have a fairly low glycemic load and useful medicinal properties, so are okay in moderation **unless you are not losing weight.**

²¹ Hu, E. et al. BMJ 2012;344:e1457

9. Eat good fat (not low-fat) + protein + fiber with every meal or snack

The combination of fat, protein, and fiber in a meal or snack will tend to slow the rise of blood sugar and improve the sense of satisfaction. Also, the fiber + protein + good fat combination takes longer to digest and delays the return of hunger. Good fats and protein include extra-virgin olive oil, raw nuts and seeds, oil-rich fish (like salmon, tuna, and sardines), avocado, eggs, unprocessed meat and poultry, whole milk dairy (like aged cheese, yogurt, and kefir), and so on. High-fiber options include vegetables, beans and legumes, and whole fruit. Here are some *Good Food, Great Medicine* ideas for vegetable/fruit + protein + healthy fat:

- Apple + sharp cheddar cheese (1 – 2 ounces)
- Pear + handful (about 15) of raw almonds
- Cucumber slices + ¼ cup hummus (page 160)
- Carrot sticks + ¼ cup homemade dip (page 157)
- Celery sticks + nut butter (1-2 tablespoons almond or peanut butter containing only nuts and salt, preferably homemade (page 162)
- Fresh berries + whole milk yogurt (1 cup), sweetened to taste with honey
- Tuna salad (page 168) on a bed of leafy greens
- Beans or lentils tossed with vinaigrette, diced sweet onions and cilantro (pages 159, 213)
- Chicken or egg salad (pages 170 and 171) on a bed of baby spinach

10. Eat breakfast and don't skip meals

A good breakfast and frequent small meals (vegetable + protein + healthy fat!) are associated with successful weight loss. An egg-based breakfast is a good option – you can even make a recipe big enough to eat for a couple of days (like the frittata on 198). Dinner leftovers from the night before are another easy option. For a quick uncooked breakfast try whole milk yogurt with berries and nuts; or a boiled egg with an apple or pear. *BUT* skip the fruit juice, bacon, sausages, ham, potatoes, and toast! If you have a robust breakfast, lunch, and afternoon snack (see step 9 for ideas), reducing the size of your evening meal will often help jump-start weight loss.

11. Include unsweetened cultured dairy

Dairy foods are associated with a reduced risk of obesity and diabetes in many studies. The evidence suggests that there is a benefit in choosing whole or 2% milk products rather than low-fat or non-fat.

Cultured milk products include yogurt, kefir, and aged cheeses like sharp cheddar and Parmesan, and are preferable to drinking milk. Yogurt and kefir can be rich sources of beneficial microorganisms (probiotics) as well as calcium and protein and are well tolerated by most of us, even many who are lactose-intolerant. Choose plain, unsweetened versions to avoid added sugar and read ingredient lists – even innocent flavors like vanilla may be heavily sweetened. This will also maximize the probiotic potential – like us, the beneficial bugs appear to do better in sugar-free environments. Flavor them yourself by adding some whole fruit or berries and a little honey if you need to. *Nancy's* yogurt is a local brand that we like.

12. Don't be misled by "low-fat" labels

This often means “high carbohydrate.” Low-fat and/or low calorie advertisement claims generally are not a marker of good nutrition. A low-fat diet is not better than a high-fat diet for weight loss – or for health markers such as cancer risk, blood sugar, or cholesterol levels. (See page 2.) Fat makes food more satisfying: don't be afraid of naturally-occurring fats in whole foods like fish, unprocessed meat, eggs, yogurt, cheese, avocado, raw nuts or seeds (like sunflower, sesame, flax, and pumpkin), hummus, extra-virgin olive oil, and so on. (Concerned about eating dairy, eggs, and meat? See a more detailed overview of these foods in *Good Food, Great Medicine* 4th edition on pages 35-50. The reasons to avoid commercial dairy, egg, and meat substitutes are covered on pages 59-61.)

Extra-virgin olive oil is good fat!

Extra-virgin olive oil is high in nutrients and a family of antioxidants called phenols. Olive oil is associated with lower total mortality²² and less cancer,²³ dementia,²⁴ heart disease, and stroke²⁵; reduced inflammation and cholesterol oxidation; improved blood clotting function, blood pressure, and endothelial function;²⁶ and improved mood and activity levels.²⁷ **No other dietary fat seems to have anything like this level of benefit.** More refined olive oils (regular and light) have had most or all of their valuable phenols processed out but are still preferable to other highly-refined vegetable oils.

²² Buckland, G. et al. *AJCN* 2012;96:142-9

²³ Psaltopoulou, T. et al. *Lipids in Health and Disease* 2011;10:127

²⁴ Valls-Pedret, C. et al. *J Alzheimers Disease* 2012;29:773-82

²⁵ Samieri, C. et al. *Neurology* 2011;77:418-25

²⁶ Moreno-Luna, R. et al. *Am J Hypertension* 2012;25:1299-304

²⁷ Kien, C.L. et al. *AJCN* 2013;97:689-97

13. Read ingredient lists!

One of the most common causes of failure to lose weight is reading *Nutrition Facts* labels and marketing claims instead of the ingredient list, which tells you what is actually in the product. Junk is often disguised as health food. For example, eight ounces of non-fat sweetened yogurt can hide 6 – 9 *teaspoons of sugar!* (This is a good example of “low fat” actually meaning “high carbohydrate”, as mentioned earlier.) Partially hydrogenated or hydrogenated oils are found in a surprising number of packaged foods, even when they claim zero trans fats. (The law doesn’t require reporting less than .5 grams per serving.) All packaged food is guilty until proven innocent! If sugar, hydrogenated oil, or white (“wheat”) flour, appear in the first five ingredients, leave it on the shelf. Remember that ingredients are listed in their order of prevalence. Also, check to see how many forms of sugar are listed – often there are three or four types of sweetening so that it won’t show up so high on the list of ingredients. Also, in “honey-sweetened” products you may even find that the honey is listed *after* two or three forms of refined sugar.

14. Watch out for processed foods that seem healthy – but aren’t

Examples include roasted nuts and seeds, fast foods, “energy” and protein bars, sweetened and flavored yogurt, “whole grain” ready-to-eat cold breakfast cereal, preserved (processed) meats, and most commercially prepared foods. When we choose unprocessed whole foods over processed foods we are getting the fiber, the fat, the protein, the carbohydrates, and the micronutrients as close as possible to the nutritional profile of the original plant or animal. When any food is processed, its nutritional profile is usually downgraded and calorie-density upgraded. There are intriguing studies indicating that extra processing steps or higher-heat processing seem to contribute to not just nutritional deficiencies, but also diabetes risk.

15. Plan tomorrow’s meals and snacks TODAY!

We all know that we make better choices when we plan ahead – and if we don’t plan for health now, we may have to plan for illness later. It’s too easy to use a busy schedule as an excuse to make bad choices. It might help to keep a master list for shopping (see page 130 of *Good Food, Great Medicine*) so you can

be sure you always have what you need on hand for your snacks and recipes. (It’s easier to stick to your list if you don’t shop when you’re hungry!) There are many whole food basics which are easy to have available in the refrigerator or pantry that make meal and snack routines convenient and easy to plan – for example, eggs, canned tuna, cheese, yogurt, carrots, celery, onions, ready-to-eat baby spinach, napa cabbage, raw nuts, and so on.

16. Monitor portion sizes and eat slowly

Eat mindfully, too – eating while otherwise occupied can lead to overeating. Try to stop eating before you’re full. Use a smaller plate at home – about 9 inches. Keep animal protein to no more than 1/3 of your plate, and fill the rest with non-starchy vegetables, legumes, and beans. Include leafy greens along with other vegetables whenever possible. 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. Save dessert for special occasions and enjoy a piece of whole fruit instead.

17. Exercise daily

Exercise daily at least 30 minutes. Exercise any way you can and at every opportunity. Avoid taking elevators if you can take the stairs. Use exercise as a health tool – its contribution to weight loss is modest unless you increase to high levels, such as an hour or two of walking daily. ***But even small amounts reduce your disease risk and help control weight.*** Are you too busy? Then do shorter bursts of higher-intensity exercise such as stairs and jumping rope. But any amount of exercise makes you healthier. A useful rule of thumb is that you should get a bit short of breath and sweaty on a daily basis. Even if it is just a 30 minute walk, keep as brisk a pace as you can. In addition to planned exercise, stay active every moment you can. For example, stand up or even walk around while talking on the phone. The world is your gym!

18. Weigh yourself weekly and keep a food journal

The scale is your friend, not your enemy. Use it as a tool to help identify when you are heading off track and need to make some adjustments. Weigh first thing in the morning without clothes at least once a week. ***If you are overweight and you aren’t losing about one pound every week or two, some part of***

the plan needs to be re-worked. Some people find it helpful to keep a food journal to track what they eat, how much, and how often. Awareness of what we eat is crucial to reforming eating habits.

19. Schedule 7 – 9 hours of sleep

Sleep is an essential nutrient. Both brain and body need the cell repair and hormone regulation accomplished while we sleep, along with other processes critical to short-term performance as well as long-term health. There are significant benefits related to getting enough sleep, and increased risks associated with inadequate sleep, including more obesity, type 2 diabetes, heart disease, and stroke.

20. Cut screen time (TV, computer)

Eliminating *or* reducing screen time by at least half can reduce your risk of type 2 diabetes and help contribute to significant weight loss. Cook a meal with your family, take an after dinner walk, do yard work, or read a good book. Surprisingly, reading books (at least the paper kind) do not seem to be associated with the adverse effects that have been found with television and computer time.

21. Avoid eating out– fix your own food!

The fact can hardly be overemphasized that your long-term weight and blood sugar management plan will be a lot more challenging unless you fix your own food and minimize eating out. If you work away from home, pack a lunch! Cook extra food for dinner, and pack servings in containers ready to grab when you need a meal to go.

Tips for eating out

When you eat out, don't fool yourself. Even a good restaurant can't afford to make your health a higher priority than their survival. They'll use ingredients and methods best for *their* bottom line, not yours.

- **Avoid fast food, period.** Choose places that offer whole food options like fresh vegetables, beans, whole grains, dairy, eggs, fish, poultry, and unprocessed meat. For example, Greek restaurants usually offer hummus and tzatziki, and fresh salads of tomato, cucumber, feta cheese, and olives.
- Try to limit yourself to only one dish – two at the most – and eat slowly.
- Consider choosing only from the appetizer and side dishes on the menu, and skip the main course.
- Steer clear of breaded or battered food. The coating is bad, the deep-frying is worse.

- Avoid concentrated starches like bread, noodles, chips, tortillas, pasta, potatoes, rice, and polenta.
- Beware salad dressings and sauces – they are generally loaded with sugar and bad fats.
- Select the simplest dishes, like grilled fish or meat with sides of vegetables.
- Avoid soups and casseroles, which usually have large amounts of the wrong kind of hidden calories.
- Check the menu for better options, like sides of vegetables to replace French fries. The restaurant may even create a side of their vegetables-of-the-day for you.
- Ask for brown rice instead of white rice. Better still, skip rice altogether.
- When in doubt, just eat meat (using the term broadly for fish, chicken, and unprocessed meat) and vegetables. Aim for ½ animal protein and ⅔ plant foods.
- When choosing a salad, pick one with the most colorful greens. In the case of lettuce, the darker green, the better. Avoid trimmings like bacon bits, croutons, and roasted salted sunflower seeds.
- For breakfast, ask for poached or fried eggs with vegetables and fresh fruit on the side.
- Just say *no* to soft drinks and fruit juice! Restrict alcohol to one 5-ounce glass of wine with your meal. Skip the pre-dinner cocktail and order a tall glass of chilled sparkling water with lemon instead.
- Resist the extras like warm bread and chips. Even after choosing sensibly from a menu, it's easy to neutralize healthy choices by indulging in calorie-dense extras that are hard to resist.
- Avoid dessert, or just eat a bit of someone else's.

Sound extreme?

Not as extreme as the 3-10 times risk of heart disease and stroke we see with the metabolic syndrome and the increased risk of death, disability, dementia and cancer. As you decide what kind of lifestyle choices you are going to make, ask yourself again: *What do I want my health, and therefore my life, to look like in ten or twenty years? And what could I be doing NOW to achieve those goals?*

Two success stories from real people

Most cases of type 2 diabetes and metabolic syndrome are primarily the result of daily food and exercise choices, not genetics. Genetics may make you more susceptible to diabetes, but sensible lifestyle choices can usually overcome the inherited component. In my medical practice, some of the patients who do the hard work this approach requires are able to obliterate any evidence of diabetes and get off their diabetes medication. (Caution: never change your diabetes medication without the supervision of your physician.)

J.P. reversed his type 2 diabetes: J.P. was a middle-aged mail carrier who, when we met him, was about 40 pounds overweight, had a blood sugar that was around four times higher than it should be at 406 mg/dl, and an HbA1c (a measure of long-term blood sugar) that was over twice the normal level at 12.7%. By adopting many of the changes we discuss here, he was able to lose 30 pounds and become ex-diabetic. Sixteen years later he has kept most of the weight off, is still on the same Mediterranean eating program, and still requires no diabetes medications.

C.M. reversed her insulin resistance: C.M. was a very fit and healthy pharmaceutical representative with a strong family history of premature heart disease. She was disturbed when she saw her blood pressure, triglycerides, cholesterol, and inflammatory markers all heading in the wrong direction, despite the fact that she was following lifestyle practices that were much healthier than average. She realized that she needed to make changes so she applied the principles we discuss here, particularly a reduction in her use of grains, and had a sustained weight loss of 15 pounds. She has been able to stop her blood pressure medications and see her triglycerides dropped by a factor of two thirds, into the low normal range! She feels terrific.

To sum it up . . .

Insulin resistance, usually associated with a large waistline, is a serious risk factor for type 2 diabetes, heart disease, stroke, cancer, osteoarthritis, dementia, and depression, just to name a few. The path to waist loss and reversal of type 2 diabetes can be a tough road because most of us are hard-wired to love the very foods that get us in trouble. Changing lifelong habits is hard work, but the lifetime rewards for most people who do the hard work will make the initial challenges seem trivial. No step is too small!

Miles Hassell MD is a board certified internist in private practice at Providence St. Vincent Medical Center in Portland, Oregon, where he lives with his wife Anna and son Tor. He received his medical degree from the University of Western Australia, and completed his residency in Internal Medicine at Providence St. Vincent Medical Center.

Dr. Hassell established the [Integrative Medicine Program](#) at Providence Cancer Center, and in his private practice encourages the vigorous use of evidence-based food and lifestyle choices. He has been chosen as one of *Portland's Top Doctors*, and is available for primary care as well as consultations for diagnosis, second opinion, or to develop patient-centered solutions using both conventional and lifestyle medicine.

Dr. Hassell is co-author of *Good Food, Great Medicine*, a 300 page evidence-based guide to using the Mediterranean diet and your kitchen in the pursuit of optimal health. It presents powerful medical evidence to support the case for a whole food Mediterranean-diet-and-exercise-based lifestyle, and includes over 200 easy-to-follow recipes using everyday ingredients.

Visit goodfoodgreatmedicine.com to download other evidence-based handouts on topics like cancer survivorship, and controlling cholesterol and blood pressure; order a copy of *Good Food, Great Medicine* (4th edition); sign up for our monthly medical and lifestyle newsletter; and find information about Dr. Hassell's *Good Food, Great Medicine* classes on weight loss and diabetes reversal, and heart disease and stroke risk reversal.

Find books at: [Amazon](#), [Powell's Books](#), [Providence Integrative Medicine Program](#), and county libraries: [Multnomah-Clackamas-Washington-Clark](#). For bulk discounts or questions contact our office:

Miles Hassell MD

Internal Medicine + Lifestyle Medicine

Comprehensive Risk Reduction Clinic

9155 SW Barnes Rd, Suite 302

Portland, OR 97225

Voice: 503.291.1777 Fax: 503.291.1079

goodfoodgreatmedicine.com

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