



The

ULTIMATE

Pre-Bed Meal

SHAWN WELLS, R.D.



The

ULTIMATE

Pre-Bed Meal

SHAWN WELLS, R.D.

THE ULTIMATE PRE-BED MEAL

Contrary to popular belief, eating after a certain time at night does NOT magically make you gain weight. While it seems intuitive that metabolic rate would slow down during sleep, metabolism does not come to a screeching halt, leaving everything you've eaten destined to become unsightly body fat.

In fact, research shows that the average person's metabolic rate is no different *during* sleep than during day.^{1,2} Not only that, daily exercise can boost sleeping metabolic rate by 11% and dramatically increase fat burning.³

There's also a common misconception that food eaten before bed will not be adequately digested. However, recent research clearly demonstrates that the digestive tract is fully functional during sleep when food (e.g., casein protein) is consumed immediately before bed, allowing effective digestion and absorption.^{4,5} In fact, researchers have found that nutrients administered during sleep (via nasal infusion) are digested and absorbed as they would be under normal waking circumstances.⁴

With that being said, it's probably been beaten into your head that eating late at night leads to fat gain. Myths like these are hard to bust, and while there are individual differences, randomized scientific trials seem to further contradict the notion that weight gain is inevitable with late-night eating.

In a crossover study published in the journal *Nutrition*, Brazilian researchers randomly assigned obese women to a very low-calorie diet under three separate conditions: 1. Five meals spread throughout the day; 2. All of the meals consumed between 9am and 11am; and 3. All of the meals consumed between 6pm and 8pm. The women consumed the same number of calories during each of the conditions, which lasted 18 days apiece and were conducted in a hospital. The women lost weight in each of the conditions, and after completion, there were no differences in weight loss, body composition, or resting

metabolic rate.⁶ This provides evidence that, in a highly controlled setting when food choices and portion sizes are consistent, timing of food intake doesn't matter when it comes to weight loss.

In a crossover study funded by the National Institute on Aging and the United States Department of Agriculture, healthy normal-weight men and women (aged 40 – 50 years old) were randomly assigned to two separate 8-week treatment periods. During one condition, participants consumed their calories (at a “maintenance” level) across 3 meals per day; in the other condition, the folks consumed the same amount of food and number of calories in a single meal. In the second condition, the participants were given a 4-hour timeframe to eat in the evening. Not only did the men and women not gain weight when they consumed all of their daily calories in the evening (i.e., 1 meal/day), they *lost* body fat (4.6 pounds). On the other hand, there was no weight or fat loss when they ate 3 meals per day.⁷

This provides more evidence that food choices and portion sizes seem to be more important than meal timing for most people. What's more, this also contradicts the notion that weight gain is inevitable with evening eating.

The #1 Worst Carb Ever (don't eat this)

At the link below, we're going to let the cat out of the bag on what is undoubtedly the #1 WORST carb EVER, and how the money-hungry food industry is conspiring to sneak this nightmare carb into just about everything.

In the end, this extremely common carb wreaks havoc on your fat-storing hormones in a MAJOR way, and has even been shown to hamper memory, slow brain activity, and increase your risk of Alzheimer's.

==> [The #1 Worst Carb EVER \(don't eat this\)](#)

In a study published in the journal *Obesity*, researchers assigned 78 Israeli police officers to one of two reduced-calorie diets for six months. Both groups consumed the same number of meals and foods throughout the day. One group followed a “normal” diet with calories and carbohydrates spread out through day, while the other group was assigned to an “experimental” diet in which they consumed a larger percentage of their calories (and carbohydrates) in the evening. Both groups lost weight, body fat, and inches from their waistlines; however, the “experimental” group experienced significantly greater improvements in all three areas.⁸

All of this is refreshing to hear because, like most folks, you’ve likely experienced late-night cravings, which may partially be explained as Father Time working against you. Yep, studies show that satiety—feelings of fullness and satisfaction—actually decreases as the day wears on.⁹

That being said, this neither means that you should binge eat at night nor is it a license to eat whatever you want. What it does mean is that when the *right* foods are chosen in the right amounts, eating at night—for most people—will not inherently lead to fat gain. In fact, choosing certain foods can positively impact body composition and fat loss.

Before delving into some of the best food choices for the “ultimate pre-bed meal,” we’d like to share some helpful tips that may be useful in guiding your late-night eating habits.

1. Focus on protein, particularly sources that are slow-digesting. Protein-dense foods are the centerpiece of the ultimate pre-bed meal. In general, optimizing protein intake plays a tremendous role in improving body composition, promoting overall health, and supporting a healthy metabolism.^{10–12} What’s more, high-protein meals boost satiety, which means that protein-dense foods are much more likely to make you feel full and satisfied.¹³

The benefits of protein don’t end there. From a body composition standpoint, one of the most important things to note is that consuming protein increases muscle protein synthesis, which is central to building and maintaining lean body mass, supporting metabolic rate, and recovering from exercise. Even more, protein synthesis is critical to ensuring that you don’t lose muscle when you’re dieting to lose fat, and protein synthesis is central to offsetting age-related muscle loss.^{11,14} In both cases, the loss of

calorie-burning muscle tends to lead to the dreaded trifecta of decreased metabolic rate, looking “skinny fat,” and rebound weight gain.

It has been well-established that consuming at least 20 grams of protein stimulates muscle protein synthesis for 2 – 5 hours after eating a meal.¹⁵ However, recent research also shows that protein synthesis drops to unexpectedly low levels during sleep, even when ample protein is consumed during and after evening exercise.¹⁶ This led researchers to speculate that protein synthesis may be reduced during sleep because of a lack of protein consumed before bed.

As previously mentioned, researchers have found that protein is both effectively digested and absorbed when consumed before bed; not only that, consumption of 20 – 40 grams of slow-digesting proteins (e.g., casein protein) prior to sleep has been shown to significantly increase muscle protein synthesis and improve overnight recovery from exercise.^{4,5}

What’s more, when this strategy of pre-bedtime protein feedings is done consistently for 12 weeks combined with a resistance training program, it results in significantly greater gains in muscle size and strength.¹⁷

Your best protein options are those that are considered to be “slow-digesting,” which means that they provide a steady release of nutrients (i.e., amino acids) over time, and we’ll provide you with some specific examples below.^{18,19}

2. Choose low-energy-dense foods. It’s tough going to bed on an empty stomach, and it’s no secret that feeling full and satisfied (i.e., satiety) is a major reason that people stop eating. With that in mind, rather than the calorie content of food, the *volume* of food that is consumed at a meal appears to be an important factor that makes people feel full and stop eating.²⁰

In fact, research strongly suggests that how much you eat daily is regulated by the *weight* of the food consumed rather than by a certain number of calories. Researchers from Penn State have posited that “energy density is a key determinant of energy intake in that cognitive, behavioral, and sensory cues related to the volume or weight of food consumed can interact with or override physiological cues associated with food intake.”²¹

Energy density is defined as the relationship of calories to the weight of food (i.e., calories per gram). Foods like oils, bacon, butter, cookies, crackers, junk food, fast food, etc., are generally considered “high-energy-dense” foods (i.e., 4 – 9 calories per gram by weight); on the contrary, nearly all fresh vegetables (and many fruits) are considered “low-energy-dense” foods (i.e., 0.0 – 1.5 calories per gram, by weight), as they tend to have a high water content and be a very good source of fiber, two important factors reducing energy density.

Eat this TWICE daily for accelerated fat loss

At the link below, we’re going to show you the #1 fat-burning meal of ALL-TIME, and how by eating this simple meal twice daily, you can shed fat faster AND easier than ever before.

Even better, you can prepare this simple fat-melting meal in less than 60 seconds.

No, it’s not too good to be true.

==> [The #1 Fat-Burning Meal \(Eat this 2xs a day\)](#)

Along those lines, researchers have found that when folks consume low-energy-dense foods, they feel satisfied earlier and those feelings of fullness persist for relatively longer periods of time—despite reductions in calorie intake. In other words, diets rich in low-energy-dense foods like vegetables and moderate amounts of fruit allow folks to eat more total food, leading to greater feelings of satiety, all while reducing calorie intake.²² By definition, that’s eating more (overall food) and *less* (calories). Bingo!

A number of other studies have demonstrated that diets rich in low-energy-dense foods like vegetables promote satiety (i.e., feelings of fullness and satisfaction), reduce hunger, and decrease overall calorie intake.^{21–25} What’s more, long-term studies have shown that low-energy-dense diets also promote weight loss. In fact, studies lasting longer than 6 months show that folks who eat more low-energy-dense foods experience THREE TIMES greater weight loss than people who simply opt to reduce calories.²⁶

Nearly all fresh vegetables and many fruits are considered low-energy-dense foods, and we'll provide several examples below. Even more, some dairy products fit into this category as well, and as you'll see, they also provide the slow-digesting proteins that seem to be optimal before bed, making them a highly beneficial option for many folks.

3. Be careful with carbohydrates. Generally speaking, carbohydrate tolerance is at its peak early in the day, with decreasing levels of insulin sensitivity occurring into the evening.^{27,28} Better said, carbohydrate tolerance seems to be at its highest at the first meal of the day (i.e., after a fast) and after intense physical activity (i.e., exercise).^{29,30}

Interestingly, when researchers from Denmark had volunteers follow an intermittent fasting (IF) program whereby they fasted for 20 hours (starting at 10pm), eating their first meal of the day at 6pm in the evening, the participants demonstrated significantly improved insulin sensitivity and carbohydrate tolerance.³¹ Speaking of IF, there's also some evidence to suggest that periodic fasting (when appropriate and properly applied) may improve quality of sleep as well as vigilance and performance during the day.³² With that being said, since the overwhelming majority of folks aren't fasting right up until bed and most people tend to exercise earlier in the day or evening, you can see why this may not be the best time to consume a significant amount of carbohydrate-dense foods. This recommendation also takes into consideration that many of the common late-night, carb-rich snack foods are typically poor choices loaded with added sugars and heavily refined grains, which tend to be closely linked to increasing rates of obesity and the intensifying prevalence of type 2 diabetes.^{33,34}

That's not to say that carbohydrates necessarily need to be completely avoided in the pre-bed meal. In fact, the *right* carb choices (e.g., low-energy-dense foods) have a minimal impact on blood sugar levels (especially when combined with protein and fats) and provide a healthy serving of fiber, which is a real nutrition all-star. Dietary fiber promotes a healthy digestive tract, regularity, improves carbohydrate management (e.g., slowed gastric emptying), promotes satiety, reduces calorie intake, and enhances weight loss.^{35,36}

What's more, carbohydrates can promote the release of serotonin, a sleep-inducing neurotransmitter, and along those lines, research also suggests that consuming some unrefined carbohydrates may improve sleep quality and how long it takes to fall asleep.³⁷

4. Add some healthy fats. Healthy fats—like those found in avocados, nuts, certain oils, and fatty fish—are also good additions to the ultimate pre-bed meal. On one hand, fats can help slow the rate of gastric emptying, and when combined with carbohydrates, fat may help to reduce the glycemic response of the meal (i.e., how quickly carbohydrates appear in the bloodstream).^{38,39}

In general, healthy fats can also help increase feelings of fullness and satisfaction, as they appear to regulate appetite through a number of mechanisms, including the release of appetite hormones.⁴⁰ What's more, combining fat with fiber (e.g., low-energy-dense foods) has been shown to further increase the satiating potential of fat.⁴¹ The satiating power of fats is often one explanation offered to describe why some weight loss trials have shown that low-carbohydrate (and higher-fat) diets tend to lead to greater weight loss than low-fat diets.⁴²

In addition, many of the important micronutrients (e.g., vitamins A, D, E, and K) and powerful antioxidant phytochemicals found in vegetables and fruits are fat-soluble nutrients. In other words, dietary fat is necessary to ensure absorption of these health-promoting, fat-fighting, age-defying nutrients.

In a study published in the *American Journal of Clinical Nutrition*, researchers compared the absorption of antioxidant phytochemicals (e.g., carotenoids) when participants consumed a salad dressed with a fat-free (i.e., 0 grams of fat), reduced-fat, or full-fat salad dressing rich in monounsaturated fats (e.g., olive oil). After consuming the salad with the fat-free dressing, the appearance of carotenoids in the bloodstream was negligible. That's right, the participants literally absorbed NONE of the free radical-fighting nutrients.⁴³ While there was a relative increase in absorption of carotenoids when participants ate the salad with a reduced-fat dressing, “a substantially greater absorption of carotenoids was observed when salads were consumed with full-fat dressing.”

In a study published in the *Journal of Nutrition*, Ohio State researchers found similar results when they added avocado or avocado oil to salsa and salads. When avocado or avocado oil, both rich in monounsaturated fats, was added to salsa, the absorption of fat-soluble carotenoids was up to four times higher than when the salsa was avocado-free. If that's not enough, when avocado was added to salads, the researchers found that absorption of carotenoids was up to 15 times higher compared to when the salads

were consumed avocado-free (i.e., fat-free).⁴⁴

5. Be mindful of your late-night nutrition habits and eat slowly. There are a number of facets to this late-night tip. For starters, here's the simplest, arguably most effective piece of nutrition advice ever: SLOW DOWN.

Although incredibly simple, it's not easy. After all, most people rush through the day with little time to spare for anything, and when you do have time to eat, you likely gobble it down—probably while you're trying to multi-task on something else. When it comes to late-night eating, it's typically accompanied by myriad distractions (e.g., TV, Internet) that influence what, how much, and how quickly food is consumed.

That said, slow eating has a number of advantages:

- Slow eating helps you “check in,” be present, and pay attention to what (and how much) you're eating and why. Eating when distracted, on the other hand, leads to overeating both acutely and at subsequent meals.
- Slow eating allows you to sense into your body's internal hunger and fullness cues.
- Slow eating helps you enjoy your food (e.g., textures, tastes, and smells).
- Slow eating enhances digestion.
- Slow eating doesn't depend on controlling what you eat—it can be done any time, anywhere, no matter what's on your plate.
- Slow eating makes you and your body the boss—no external rules (e.g., calorie counting).

Not only that, eating slowly can help you lose weight. A number of studies have shown that simply by eating more slowly, folks consume fewer calories—in fact, enough to drop 10 pounds in a year without doing anything differently!⁴⁵

One reason is that it takes about 20 minutes for your brain and stomach to register fullness, and by eating slowly, you have time to recognize when you're satisfied—not stuffed—and stop on time.

In a recent research article that appeared in the *American Journal of Clinical Nutrition*,

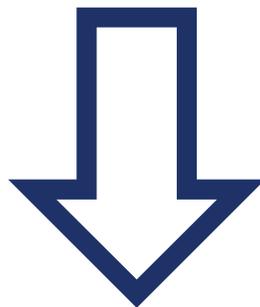
researchers from the University of Birmingham (United Kingdom) reviewed 24 different studies that examined the effect that manipulating memory, distraction, awareness, or attention has on food intake.⁴⁶

The researchers found that eating when distracted not only causes folks to eat more at that meal or snack, but get this, it also causes people to eat an even greater amount later on in subsequent meals. On the other hand, the researchers found that being more attentive to meals and using “food memories” (e.g., using visual reminders of meals, keeping food wrappers) led to decreased food intake both acutely and at later meals.

This research provides clear evidence that the practice of “mindful eating” is increasingly important when trying to lose fat. As a matter of fact, the authors concluded:

“Evidence indicates that attentive eating is likely to influence food intake, and incorporation of attentive-eating principles into interventions provides a novel approach to aid weight loss and maintenance without the need for conscious calorie counting.”

**Check Out the
30 Second Trick that Flattens your Belly
on the next page**



30 second daily “trick” FLATTENS your belly

How would you like to flatten your belly in just 30 seconds a day?

Well, you CAN.

In fact, it’s almost ironic... this 30 sec trick is by far one of the most effective fat loss strategies our clients have EVER tried, and it’s also the easiest to implement.

Literally, just 30 seconds a day:

==> [30 second daily trick FLATTENS your belly](#)

This piece of advice is useful at any time of day, but it may come in particularly handy at night when most folks have a tendency to snack “mindlessly” while sitting around watching TV. Cornell University researcher and food psychologist Dr. Brian Wansink has written a book on what he refers to as “mindless eating” and the significance that one’s food environment has on what and how much s/he eats.^{47,48}

Along these same lines, researchers from North Carolina conducted an entire study to promote research on the question, “Do hunger and satiety still affect eating or has recreational (or mindless) eating taken over?” Like Dr. Wansink’s research, they found that food intake is influenced by a multitude of biological and social signals, which have led to significant increases in overall calorie consumption and the frequency that people eat/snack over the course of a day.⁴⁹

With all of that in mind, slow down when you eat; take smaller bites; and chew each bite slower, longer, and more completely. Also, take time to consider the food choices you tend to make at night and the type of environmental cues (e.g., TV, others eating) that influence your eating behaviors.

Before getting to some of the top foods for the ultimate pre-bed meal, it’s important

to remind you that, in the grand scheme of things, your health, fitness, performance, and body composition are contingent on your entire body of “nutrition work”—not an individual food or single meal. In other words, there’s no one “magical” food. Instead of viewing foods in isolation as “good” or “bad,” think about weight management and “deep health” as the product of practicing healthy eating habits, creating a positive food environment, and choosing high-quality, nutritious foods in appropriate amounts **regularly** and **consistently** over time. Good nutrition takes practice, and just like getting better and mastering anything in life, it’s about progress—not perfection.

With that being said, here are some of our favorite foods for the ultimate pre-bed meal.

1. Greek Yogurt and Cottage Cheese

Slow-digesting proteins; low-energy-dense foods

As detailed above, recent research shows that consuming 20 – 40 grams of the (cow’s) milk-based protein *casein* prior to sleep boosts body composition, recovery from exercise, and muscular strength. What’s more, diets rich in high-quality proteins improve appetite control and satiety, as well as reduce daily food intake.⁵⁰



Complete milk proteins from dairy are composed of 20% whey protein, which is rapidly digesting, and 80% micellar casein, which is digested much more slowly.⁵¹ For this reason alone, protein-dense dairy foods like Greek yogurt and cottage cheese are excellent choices for a pre-bed meal. What’s more, both of these foods are considered low-energy-dense foods, fortifying their position.

Greek yogurt contains more than double the protein of regular yogurt and only about one-third the amount of sugar. Even more, authentic strained Greek yogurt is rich in multiple sources of probiotics. Research indicates that the gut flora (i.e., the bacterial ecosystem) of obese folks differs significantly from that of thin people.⁵² Along these lines, recent research published in the *British Journal of Nutrition* suggests that certain probiotics from the *Lactobacillus* family of bacteria, which are prominent in Greek yogurt, may help you lose weight and keep it off.⁵³

When choosing a Greek yogurt, it's best to opt for plain versions, as fruit-flavored varieties have over three times as much sugar. Instead, add some low-energy-dense fresh fruits (e.g., berries), which will provide a nutrient-dense source of fiber, vitamins, and antioxidant phytochemicals.

Cottage cheese goes hand-in-hand with Greek yogurt. Cottage cheese packs a whopping 28 grams of protein per single cup, and it is also a good source of calcium, riboflavin, vitamin B12, selenium, and phosphorus. Cottage cheese is rich in casein protein, which is known as a slow-digesting protein. In fact, studies show that levels of amino acids remain elevated upwards of 5 hours after ingestion of casein protein.¹⁸



One cup of cottage cheese also packs a healthy punch of branched-chain amino acids (BCAAs), including over 2 ½ grams of leucine, which is essential to muscle health. BCAAs are crucial to exercise performance, muscle recovery, and maintaining blood sugar levels, and the amino acid leucine is considered to be the “anabolic trigger” for muscle recovery and growth following exercise.⁵⁴

We recommend that you choose organic sources of Greek yogurt, cottage cheese, and other forms of dairy whenever possible. Organic dairy has a significantly different fatty acid profile when compared to conventional dairy. Specifically, studies comparing organic to conventional have reported that organic dairy contains:⁵⁵

- 25% fewer omega-6 fatty acids, which are pro-inflammatory;
- 62% more omega-3 fatty acids, which are anti-inflammatory;
- 2.5 times lower omega-6 to omega-3 fatty acid ratio, which is much closer to optimal;
- 32% more EPA and 19% more DHA, which are two omega-3 fatty acids crucial for nervous system function, cardiovascular health, pain management, hormonal regulation, body composition, feelings of well being, and more; and 18% more conjugated linoleic acid (CLA), which has been shown to reduce body fat, increase lean body mass, and improve body composition.⁵⁶

While dairy seems to have gained a negative reputation in certain circles, a number of studies have demonstrated that dairy consumption may contribute to increases in lean body mass along with losses in body fat (i.e., improved body composition).^{57–61}

Some folks do take issue with dairy, and in many cases, mild GI discomfort can be alleviated by gradually increasing consumption and/or through use of digestive enzyme supplementation. While most digestive enzyme supplements in this category tend to only supply the lactase enzyme—which is necessary for the proper breakdown of the sugar lactose found in milk—it’s a better idea to consider a full-spectrum product that also includes proteolytic enzymes to help with the digestion of the proteins (e.g., whey, casein) found in milk, as they may also contribute to digestive discomfort.

Bonus Recommendation: Consider using a milk-based protein supplement that includes micellar casein and/or milk protein concentrate.

2. Animal Proteins

Slow-digesting proteins; healthy fats

This category includes, but is not limited to, lean beef, poultry, and fish. Beef is loaded with protein, as well as the following essential nutrients:

- Vitamin B12
- Selenium
- Zinc
- Niacin
- Vitamin B6
- Phosphorus
- Choline
- Iron
- Riboflavin



Despite a bad rap in certain circles, beef is a nutrient-dense, fat-fighting all-star. However, not all beef is created equally, and grass-fed beef may be a superior option over standard grain-fed options. Interestingly, regardless of whether your beef is grain-fed or grass-fed, it’s fatty acid profile will be about 40-50% saturated fat, about 40-50%

monounsaturated fat, and somewhere near 10% polyunsaturated fat. However, the diet of the cow can significantly influence the types of each fat present.

Do you POOP enough?

Please excuse the somewhat personal nature of this excerpt, but the information we are about to share below is extremely important for both you and your digestive health.

You may not think that you're constipated, but in reality, it is VERY likely that you ARE.

You see, constipation is not simply "not being able to go", or only eliminating once a week...that's severe constipation. The truth is, a healthy digestive system should be eliminating after every meal.

Are you moving your bowels several times a day, once for every meal you eat? If not, you are suffering from constipation, which will cause a buildup of toxins and undigested, rotten, putrid food in your digestive system.

This can make it much harder for you to lose fat while also wreaking havoc on your digestive system and overall health...really bad stuff. Just imagine all that rotted, disgusting food sitting there in your digestive system...yuck!

Fortunately, this can be corrected rather quickly, with a few simple steps:

==> [4 tips for healthy digestion and regular bowel movements](#)

Depending on the breed of cow, grass-fed beef contains up to 5 times more omega-3 fatty acids than grain-fed beef.⁶² The average ratio of omega-6 to omega-3 fatty acids in grass-fed beef is 1.5:1, which is essentially ideal. On the contrary, in grain-fed beef, this ratio jumps all the way up to nearly 8:1.

In addition to a much healthier omega-3 fatty acid profile, grass-fed beef is one of the best dietary sources of conjugated linoleic acid (CLA), as it contains an average of 2 to 3 times more CLA than grain-fed beef. CLA possesses antioxidant activity, and research has shown it to reduce body fat, increase lean body mass, and improve body composition.⁵⁶

Wild-caught, cold-water fish like salmon, sardines, anchovies, mackerel, halibut, and tuna are rife with protein and omega-3 fatty acids. In addition to their brain and cardiovascular health benefits, these essential fats have been shown to have beneficial effects on metabolism and body composition.

Researchers from Gettysburg College found that supplementation with fish oils, which supply the same types of omega-3 fatty acids found in fatty fish like salmon, for 6 weeks significantly increased fat free mass and decreased fat mass.⁶³ What's more, the participants also experienced increased metabolic rate and significantly decreased levels of cortisol, a stress hormone associated with increased abdominal fat storage.⁶⁴

Researchers from Australia recently found similar impressive results as they combined omega-3 fatty acid supplementation with a weight loss diet. They found that study participants with higher omega-3 fatty acid intakes lost significantly more fat than the folks who did not supplement with the fish oils, despite the fact that both groups followed the same diet protocol.⁶⁵

Chicken is best known for its high protein content, and at up to 35 grams of protein per 4-ounce (cooked) portion, it is indeed an excellent source. As a result, it helps boost the metabolism, increase satiety, and support the maintenance of calorie-burning lean body mass. Muscle mass is more “metabolically active” than body fat, and generally speaking, metabolic rate is proportionate to lean body mass.⁶⁶

In addition to its protein content, chicken is also a very good source of numerous other vitamins and minerals that are critical to overall health and metabolism, including:

- Vitamin B3
- Vitamin B6
- Vitamin B12

- Pantothenic acid
- Selenium
- Phosphorus
- Choline
- Zinc
- Copper
- Magnesium
- Iron



Clearly, chicken provides broad nutrient support. Like cottage cheese, chicken is also an excellent source of the amino acid leucine. A cooked 4-ounce portion of chicken breast provides over 2 ½ grams of leucine, which is the threshold at which protein synthesis is restored, according to researchers at the University of Illinois.

In fact, high-leucine diets (a minimum of 2 ½ grams of leucine per meal) have been shown to lead to greater fat loss and better preservation of lean body mass when consuming a reduced-calorie diet. What's more, researchers have found that high-leucine diets also result in better carbohydrate management.^{67,68}

3. Eggs

Slow-digesting proteins; low-energy-dense food; healthy fats

Eggs provide one of the highest quality proteins of any whole food available; in fact, researchers frequently use the eggs as the standard in measuring the quality of protein from other foods. In addition to packing 7 grams of slow-digesting protein, a single egg is also loaded with several critical nutrients, including:



- Choline, which supports brain health and nervous system function;
- Lutein and zeaxanthin, which are potent antioxidants that fight free radicals and help prevent macular degeneration;
- Vitamin A;
- Vitamin D;

- Selenium;
- Phosphorus;
- Potassium;
- And more.

That being said, just like there are differences between beef from grass-fed and grain-fed animals, not all eggs are created equally from a nutrition standpoint. Specifically, research from *Mother Earth News* suggests that eggs from pasture-raised hens provide a significantly improved nutrition profile compared to standard store-bought eggs.⁶⁹ For example, compared to typical supermarket eggs, the eggs from pasture-raised hens may contain:

- 1/3 less cholesterol
- 1/4 less saturated fat
- 2/3 more vitamin A
- 2 times more omega-3 fatty acids
- 3 times more vitamin E
- 6 times more vitamin D
- 7 times more beta-carotene

Because the lines are somewhat blurry on the definitions of cage-free and pasture-raised, it may be beneficial to do some additional research on the eggs available to you. Better yet, you may consider going to a local farmer's market and purchase certified organic eggs from pasture-raised hens.

4. Cruciferous Vegetables

Low-energy-dense food; smart carbs

Cruciferous vegetables may have more fat-fighting and health-boosting benefits than nearly any other family of vegetables. On top of that, there are so many options from which to choose, including:

- Broccoli
- Kale



- Cauliflower
- Brussels Sprouts
- Rutabaga
- Cabbage
- Bok Choy
- Swiss Chard
- Turnips
- Arugula
- Collard Greens
- Watercress
- Radishes



Cruciferous vegetables are high in fiber, and as previously mentioned, fiber is a nutrition all-star, promoting healthy GI function, satiety, and weight management. Generally speaking, a single serving of any of the above vegetables provides between 3 – 7 grams of appetite-satisfying fiber—and only about 30 – 40 calories.

One unique benefit of cruciferous vegetables is their ability to help promote healthy estrogen metabolism through a special phytonutrient called indole-3-carbinol (I3C).⁷⁰ I3C helps promote an increase in the ratio of “good” (2-hydroxy estrogen) to “bad” estrogen (16-hydroxy estrogen). The “good” 2-hydroxy estrogen is a less active form that is typically excreted from the body more rapidly.

In one study, researchers from the University of Massachusetts, found that cruciferous vegetable consumption was associated with a significant increase in “good” to “bad” estrogen (i.e., 2:16-hydroxysterone ratio). In fact, just a 10-gram-per-day increase in cruciferous vegetable intake was enough to improve the 2:16-hydroxysterone ratio.⁷¹

A number of additional studies have demonstrated that either daily supplementation with I3C or the addition of broccoli (e.g., 2 cups per day) to one’s diet significantly improves the 2:16-hydroxysterone ratio, which appears to be closely correlated to maintaining optimal female and overall health.⁷²⁻⁷⁴ What’s more, an increase in 2-hydroxy estrogen has been shown to reduce body fat and the size of fat cells, as well as increase fat burning in animals.⁷⁵

Do this ONCE per day (takes seconds; 11 major health benefits)

Could it really be that ingesting this one single “super nutrient” from good ol’ Mother Nature, just ONCE per day, could provide ALL of these incredible health benefits at the SAME time?

1. Increased heart health
2. Sharpened focus
3. Heightened memory
4. Reduced joint pain
5. Improved eye health
6. Greater bone density
7. More youthful skin, nails, and hair
8. Mood enhancement
9. A slimmer waistline
10. Natural hormonal enhancement
11. Anti-aging benefits

...AND MORE?

Yes, it’s true, and at the link below we’re going to tell you ALL about this breakthrough “super nutrient” and exactly where you can find it (inexpensively) so you can begin experiencing all of the above benefits for yourself—quickly and easily—each and every day.

In fact, according to many top medical doctors today, this single “super nutrient” just may be the most important nutrient EVER for your health, well-being and longevity.

==> [Do THIS once per day \(takes seconds; 11 major health benefits\)](#)

Not only that, through its beneficial effects on estrogen metabolism, I3C can help fight off dietary and environmental estrogens to which you may be exposed to through soy, plastics, personal care products, pesticides, and more. Environmental estrogens have also been linked to high levels of belly fat; thus, by consuming more cruciferous vegetables you'll be fighting off belly fat stores at the same time.⁷⁶

Cruciferous vegetables are also rich in a compound called sulforaphane, which is known to have a beneficial impact on carbohydrate tolerance and metabolism. What's more, sulforaphane has been shown to increase the activity of a key fat-burning enzyme called hormone sensitive lipase (HSL). HSL plays an important role in the breakdown of fats (i.e., lipolysis) for fuel, and by upregulating HSL, sulforaphane has been shown to enhance lipolysis.⁷⁷

Not only does sulforaphane have the potential to increase the body's ability to breakdown fats for fuel, it has also been shown in research to both inhibit the body's ability to create new fat cells (i.e., adipogenesis) as well as suppress the body's ability to store fat (i.e., lipogenesis).⁷⁸ Burn more fat and store less—sounds like a winner!

Even beyond the above benefits, a recent study published in the renowned journal *Nature Immunology* discovered that cruciferous vegetables may play an essential role in controlling immune cells vital to a healthy digestive system.⁷⁹ Dr. Gabrielle Belz and her colleagues have found that a gene called T-bet is responsible for the production of gut-protective immune cells (i.e., innate lymphoid cells, ILCs). Specifically, proteins in cruciferous vegetables switch the T-bet gene on and appear to assist it in producing ILCs, which promote good intestinal health by keeping “bad” bacteria out of the intestine.

Cruciferous vegetables have also been shown through research to boast antioxidant and anti-aging properties. In fact, one study funded by the National Cancer Institute showed that participants who consumed 1 - 2 cups of cruciferous vegetables a day reduced their oxidative stress by 22% in just 3 weeks.⁸⁰

5. Spinach

Low-energy-dense food; smart carbs

Spinach is arguably one of the most nutrient-dense foods you can find, as it is loaded

with essential vitamins and minerals, as well as copious phytochemicals. As a matter of fact, spinach is an excellent source of:

- Vitamin K
- Vitamin A
- Manganese
- Folate
- Magnesium
- Iron
- Copper
- Vitamin B2
- Vitamin B6
- Vitamin E
- Calcium
- Potassium
- Vitamin C
- Fiber
- Phosphorus
- Vitamin B1
- Zinc
- Choline



With that laundry list of essential nutrients, it's easy to see why this “superfood” would be at the top of anyone’s list trying to lose fat and promote a healthy lifestyle. What’s more, all of these nutrients come at a very low price, calorically speaking. As a matter of fact, a single cup of spinach contains only 7 calories. In addition to these micronutrients, spinach is also a rich source of phytonutrients and antioxidants, like the carotenoids lutein, zeaxanthin, neoxanthin, and violaxanthin.

The phytonutrients and antioxidants in spinach work hard to scavenge free radicals and support a healthy inflammatory response. Along these lines, the research is becoming abundantly clear that inflammation plays an important role in obesity, and vice versa.⁸¹ Thus, including anti-inflammatory foods like spinach in your nutrition arsenal is important for optimizing overall health and body weight.

2 minute “cleanse” kills toxic parasites LIVING in your belly

Due to exposure to an array of common foods, beverages, and over-the-counter medicines, 9 out of 10 people’s guts have been infested with toxic, parasitic bacteria that is DESTROYING their health and making it virtually impossible for them to drop fat from their biggest problem areas...and that very likely means **you**.

Fortunately, there’s a quick 2 minute “cleanse” that you can perform today, almost without thinking, to correct this dangerous imbalance. Just follow the simple steps given at this link:

==> [2 minute “cleanse” kills toxic parasites LIVING in your belly](#)

In one study published in the journal *Appetite*, Swedish researchers gave overweight women either a beverage containing a greens extract (made from baby spinach leaves) or a placebo prior to breakfast each day. At the end of the 3-month study, the women consuming the beverage with the spinach extract lost, on average, 11 pounds—43% more weight than the placebo group, which was provided the same nutrition and exercise advice.⁸²

The researchers credited the enhanced weight loss to slowed digestion time, improved appetite control, and reductions in hunger. In fact, the women consuming the spinach extract benefited from a 95% decrease in the urge to eat highly palatable foods (e.g., sweets, junk food, fast food).

The researchers found that after the women consumed the spinach extract, they demonstrated a 2.6-fold greater increase (compared to the placebo group) in the hormone GLP-1, which promotes satiety (i.e., feelings of fullness), regulates reward-induced food consumption, and plays an important role in the urge to eat sweet, salt, and fat (i.e., junk food).

In a follow-up study published in the *Journal of the American College of Nutrition*, the same group of researchers confirmed these findings, as they found that folks who consumed the spinach extract demonstrated increased satiety for several hours after consumption. What was particularly interesting about this study was that the researchers found that spinach extract seemed to positively impact the “food reward system,” often referred to as hedonic compensation.⁸³

Essentially, an eating episode (i.e., the choice to eat food) can be sparked by metabolic need, hedonic drive, or a combination of the two. In other words, in today’s world, we no longer eat only when we’re “metabolically hungry.” Instead, we are driven to eat even when we’re not truly hungry and despite having vast energy reserves (i.e., body fat).

More and more, obesity researchers are investigating the impact of hedonic drive on eating behaviors, which involves cognitive, reward, and emotional factors and may include choosing to eat based on food environment, food addiction, stress relief, boredom, and mood elevation.⁸⁴ By suppressing food cravings via acting on the reward system (through various hormones), certain foods like spinach may possess a novel way to reduce calorie consumption and positively address energy balance.

6. Blueberries and Other Berries

Low-energy-dense food; smart carbs

The health benefits of blueberries and other berries, with their dark pigment indicative of their rich polyphenol content, have been demonstrated in various nutrition studies. Research suggests that these nutritional powerhouses may have cardioprotective effects as well as benefits ranging from anti-aging to optimized metabolic health.



Researchers from Texas Women’s University recently demonstrated that the polyphenols in blueberries might play a significant role in reducing body fat. Specifically, the researchers found that these compounds inhibited the formation of fat cells.⁸⁵

What’s more, researchers from New Zealand found that consumption of blueberries

may also accelerate muscle recovery when combined with exercise. Specifically, folks who consumed a blueberry smoothie before and after exercise experienced reduced muscle soreness and accelerated recovery of strength, which translates to more frequent exercise and improved performance.⁸⁶ That also adds up to helping prevent the loss of calorie-burning muscle when dieting. Simply put, muscle loss contributes to decreased metabolism, looking “skinny fat,” and rapid rebound weight gain when resuming a “normal” eating routine after a diet—all things you don’t want.

Anthocyanins, the colorful antioxidant pigments that give blueberries their rich color, are well-known for their wide-ranging health benefits, including optimizing carbohydrate metabolism and insulin sensitivity. Specifically, cyanidin 3-glucoside (C3G), which is a member of the anthocyanin family, has been shown to enhance insulin efficiency and improve carbohydrate metabolism, both of which have major implications for optimizing fat loss and weight management.^{87,88}

What’s more, anthocyanins have been shown to have a unique effect on fat cells, and this has led researchers to state that they may play an intricate role in improving metabolic health. As a matter of fact, researchers investigating the effects of anthocyanins on fat cells (i.e., adipocytes) concluded, “Anthocyanins have a significant potency of anti-obesity and ameliorate adipocyte function” and they also have “important implications for preventing metabolic syndrome.”⁸⁹

The myriad benefits associated with blueberries may also be extended to other dark-colored berries (e.g., strawberries, raspberries, etc.), which also contain a wealth of antioxidant phytochemicals and appetite-satisfying fiber.

7. Cherries

Low-energy-dense food; smart carbs

Like berries, cherries are rich in antioxidant phytochemicals and a source of smart carbs. In fact, studies have shown that the antioxidant potential of the anthocyanins—phytonutrients that are responsible for the red skin and flesh color of cherries—are superior to vitamin E.⁹⁰



Going back to the previous discussion on mindful eating, eating slowly and thoroughly chewing your food can have a tremendous impact on portion control and allowing your body and brain to register feelings of fullness and satisfaction. Along these lines, with pitted cherries, you can't simply devour a significant amount in record time like you can with other snacks—and even some fruits. Instead, the pits force you to eat slowly, allowing your satiety centers to register feelings of fullness and help prevent you from over-consumption.

In addition to the potential health and body composition benefits, another late-night benefit of cherries is that they may help promote sleep. A variety of cherries contain tryptophan, melatonin, and serotonin, all key role players in promoting onset and quality of sleep.

In a double-blind pilot study published in the *Journal of Medicinal Food*, a group of researchers from the Sleep & Neurophysiology Research Laboratory at the University of Rochester Medical Center found that fresh tart cherry juice, consumed twice daily, produced reductions in insomnia in elderly folks, and what's more, they found that the time required for the study participants to fall asleep was reduced by 17 minutes.⁹¹

The influence of cherries on sleep was also documented in another study conducted by a group of Spanish researchers. In the study, middle-aged and elderly volunteers consumed about 1 cup of cherries (a variety of different types of cherries were consumed across the group) twice daily at lunch and dinner for three days. The researchers found that cherry consumption increased sleep time significantly and reduced the number of awakenings.⁹²

8. Kiwifruit

Low-energy-dense food; smart carbs

Like cherries, kiwifruit also contains serotonin and has been shown to have beneficial effects on sleep. In a recent study published in the *Asia Pacific Journal of Clinical Nutrition*, researchers from Taiwan found that middle-aged adults who consumed two kiwifruits one hour before bedtime every night for four weeks experienced significantly improved sleep—both



total sleep time as well as sleep efficiency. The researchers concluded, “Kiwifruit consumption may improve sleep onset, duration, and efficiency in adults with self-reported sleep disturbances.”⁹³

Do THIS twice daily to burn BELLY FLAB

Exciting news to share with you today... There’s a new way to burn belly fat that has been shown in more than a DOZEN research studies to help you burn fat and slim your waist at an accelerated rate.

In fact, one breakthrough study showed that those who performed this belly-burning trick just twice daily **burned 400% more fat** than those who didn’t. Another study published in the *Journal of International Medical Research* showed that those using this powerful flab-burning trick lost 20% of their body fat in just 12 weeks. And get this... the trick takes less than a minute to perform!

Would you like to burn 400% more fat by using this quick, belly-busting trick just twice daily? We show you exactly how to do it here:

==> [Do THIS twice daily to burn BELLY FLAB \(takes less than 1 min\)](#)

Also known as the “Chinese gooseberry,” kiwifruit is low in calories and high in water content, making it a low-energy-dense food and a solid option for the ultimate pre-bed meal. Among its nutrient density, kiwifruit is a good source of fiber, and it is particularly noteworthy because it provides what’s referred to as prebiotic fiber.

A *prebiotic* is defined as “a selectively fermented ingredient that allows specific changes, both in the composition and/or activity in the gastrointestinal microflora, that confer benefits.”⁹⁴ In other words, the pectin found in kiwifruit preferentially stimulates the growth of healthy bacteria in the digestive tract.⁹⁵ That’s right, just like humans need nutrients to thrive, so too do the beneficial microbes that inhabit the gut.

This is important for a wide variety of reasons because gut bacteria—and more

importantly, an optimal balance of healthy gut bacteria—play a tremendous role in digestive system health and function, overall health, immune system function, wellbeing, metabolism, the respiratory (i.e., lungs) and integumentary (i.e., skin) systems, and more.

With regard to fat loss, the evidence that gut bacteria contribute to energy balance (or, weight management) is so strong that Dr. Patrice Cani and her colleagues at the Metabolism and Nutrition Research Group in Belgium have coined the term “MicroObesity” to describe the relationship between gut “dysbiosis” (i.e., an imbalance of gut bacteria) and obesity.⁹⁶

Among the many fascinating discoveries that researchers have found connecting gut microbiome to weight management include:

- A research team led by Dr. Jeffrey Gordon at the Washington University School of Medicine showed that obese and lean human twins have clear differences in their gut microbial communities. Most notably, the gut flora in obese twins contains less diverse bacterial species.⁹⁷
- Not only that, Dr. Gordon and his research team demonstrated that when fecal material (rich in gut bacteria) from an obese human is transplanted into the gut of a healthy lab rat, the animal will gain a significant amount of weight despite the fact that its diet remains unchanged.⁹⁷
- In a study performed at the Obesity, Metabolism & Nutritional Institute at Massachusetts General Hospital, researchers found that changes in the gut flora are partially responsible for the weight loss and reduced body fat following gastric bypass surgery.⁹⁸

With that in mind, taking steps to improve the balance of healthy gut bacteria—which includes providing important support nutrients like the prebiotic fiber found in kiwifruit—has serious implications for reducing body fat and optimizing weight management.

9. Grapefruit

Low-energy-dense food; smart carbs

Like oranges, another superstar citrus fruit worthy of making this list, grapefruits are an excellent source of vitamin C. In fact, when comparing whole fruits,



grapefruits contain about 26% more of this key micronutrient, which may help combat stress.

In one study, German researchers found that, when faced with a stressful situation (e.g., public speaking), healthy young adults who supplemented with vitamin C experienced reduced blood pressure, a decreased stress response, and significant reductions in the hormone cortisol.⁹⁹

Cortisol is one of the body's primary stress hormones, and it can have a significant impact on fat loss and weight gain. In fact, cortisol has been shown to increase a process called "lipogenesis" (i.e., the creation of fat), and it is particularly associated with increased abdominal fat storage (i.e., excess belly fat).^{64,100,101} Previous research has shown that abdominal obesity is associated with a "constellation of metabolic abnormalities," including:^{102,103}

- High triglycerides
- Low levels of "good" cholesterol (i.e., HDL)
- High levels of apolipoprotein B (which is considered a better predictor of cardiovascular risk than the more commonly used LDL¹⁰⁴)
- Small, dense LDL and HDL particles (small, dense particles are considered more detrimental than large, fluffy particles¹⁰⁵)
- Unhealthy levels of inflammation
- Insulin resistance
- Poor carbohydrate tolerance and metabolism
- Leptin resistance

In addition to its vitamin C content, grapefruits are also a good source of fiber, which helps slow gastric emptying and increase satiety (i.e., feelings of fullness). What's more, grapefruits have a very high water content (~91%), and subsequently, they are considered a low-energy-dense food. As you already know, these are important factors that play a significant role in appetite control and weight management.

In one study published in the journal *Nutrition & Metabolism*, researchers from Vanderbilt found that when folks added half of a grapefruit (before breakfast, lunch, and dinner) to a reduced-calorie diet they ended up consuming up to 500 fewer calories per day—without any increase in hunger—which had a tremendous impact on weight loss.

With the addition of grapefruit, the participants' rate of weight loss increased by over 13% compared to when they were following a reduced-calorie diet without the fruit.¹⁰⁶ In another study published in the *Journal of Medicinal Food*, researchers from the Scripps Clinic in California found that overweight folks consuming fresh grapefruit three times daily before meals lost 5 TIMES more weight than the placebo group (i.e., no grapefruit) over the course of 12 weeks. Not only that, the researchers also found that the addition of grapefruit significantly improved insulin sensitivity, which is intimately tied to carbohydrate metabolism and weight management.^{107,108}

Never eat this type of fish (EVER)

While we've been led to believe that fish is one of the healthiest food choices around, what you probably didn't know is that there are 4 specific types of fish -- all very common -- that you should literally NEVER eat due to incredibly high levels of contamination that can and WILL hammer the delicate cells of your body with **toxic inflammation...**

In the end, this toxic inflammation build up contributes to achy joints, premature aging of the skin (and less visible organs like the heart, kidneys, and liver), difficulty shedding excess weight, cognitive decline, forgetfulness, feeling blue and moody, and so much more...

Whatever you do, **AVOID these 4 types of fish** like the plague:

==> [NEVER eat this type of fish \(EVER\)](#)

Watch out!

Grapefruit has one more trick up its sleeve: Naringin, which is a potent antioxidant that helps protect cells from free radicals.¹⁰⁹ Free radicals lead to oxidative stress, which is associated with aging, reduced carbohydrate tolerance, and obesity.

In the body, naringin is broken down into naringenin, a compound that has been shown to activate an important enzyme called AMPK, which facilitates the uptake of

carbohydrates into muscles to be used for energy (instead of being stored as fat).^{110–112} If that's not enough, naringenin has also been shown to reduce a process called adipogenesis—a fancy name for the creation of new fat cells—as well as increase fat burning.^{113,114}

10. Avocados

Healthy fats

Also known as the “Alligator Pear,” the avocado is a climacteric fruit, which means that it matures on the tree but ripens off of it. The avocado is a nutrient-dense fruit, containing upwards of 20 essential nutrients—which are crucial to optimizing your health and stoking your fat-burning furnace—including fiber, vitamin K, folate, vitamin B6, vitamin C, vitamin E, pantothenic acid, potassium, riboflavin, and niacin. Avocados are rife in monounsaturated fats (MUFAs), including oleic acid, which seems to have a potent impact on appetite regulation.



Researchers from the University of California Irvine found that oleic acid stimulates the production of a compound called oleoylethanolamide (OEA) by the cells of the small intestine.¹¹⁵ OEA helps to suppress appetite by activating specific sites in the brain that help to curb hunger. Previously, this group of researchers found that increasing OEA levels reduces appetite, increases weight loss, and improves various metabolic parameters.¹¹⁶

According to research recently published in *Nutrition Journal*, eating avocado with a meal significantly improves satisfaction and reduces the desire to snack in the hours after eating.¹¹⁷ Specifically, researchers found that participants who consumed half of an avocado with their lunch reported a 23% increase in meal satisfaction, a 40% decrease in their desire to eat during the three hours after their lunch, and a 28% decrease in the desire to eat 5 hours afterward.

What's more, the authors of the study noted significant improvements in insulin efficiency, suggesting that avocados may help optimize carbohydrate management, another very important factor when trying to lose fat.

Observational studies suggest that regular avocado consumption is associated with better diet quality, nutrient intake, and overall metabolic health. In another study published in *Nutrition Journal*, researchers examined the dietary habits of over 17,000 men and women, and they found that those folks who regularly consumed avocados were more likely to have a lower body weight, body mass index (BMI), and waist circumference.¹¹⁸

As previously mentioned, research shows that consuming avocados alongside vegetables can dramatically improve the absorption of important fat-fighting phytochemicals, which combat oxidative stress, a process associated with aging and obesity.¹¹⁹⁻¹²²

11. Mixed Nuts

Healthy fats

Nuts are rife in monounsaturated fats (MUFAs), which are known for their heart-healthy benefits. Just like avocados, nuts are rich in a specific MUFA called oleic acid, and as a result, one of the myriad potential benefits of consuming nuts is an improvement in appetite regulation.



Although predominantly a fat-dense food, nuts also contain a healthy dose of fiber and some protein, and they are also a rich source of essential nutrients (e.g., fat-soluble vitamins, minerals) and phytonutrients.

As you already know, protein, fiber, and healthy fats like those found in nuts signal powerful satiety hormones. Researchers also believe that the sensory characteristics of nuts, specifically the fact that they're crunchy, also have satiety value. That is, the mechanical aspect of chewing crunchy nuts generates a satiety signal.¹²³

What's more, nuts are also resistant to digestion due to the tough walls of their cells. According to researchers from Purdue University, as much as one-fifth of the fat in nuts never gets absorbed by the body.¹²⁴

Overall, a collection of epidemiological evidence suggests that folks who regularly consume nuts have a lower body mass index (BMI) than non-consumers. Further,

clinical studies have consistently found that the inclusion of nuts leads to greater diet compliance and weight loss compared to when nuts are excluded.¹²⁵ Even more, regular nut consumption has been shown to boost metabolism by as much as 11% and increase fat burning by up to 50%.^{126,127}

Because of their diverse nutrient profiles, consider trying a variety of nuts, including:

- Almonds
- Brazil Nuts
- Cashews
- Pecans
- Pistachios
- Walnuts

Creating the Ultimate Pre-Bed Meal

The take-home point of all of this is that consuming the right foods in the right amounts at nighttime will not inherently lead to fat gain. In fact, the opposite is quite possibly a greater reality, as a balanced diet rich in high-quality protein, low-energy-dense, fiber-rich foods, and healthy fats can help improve appetite control and satiety, promote fat loss, boost body composition, support muscle size, strength, and recovery, and optimize health.

Remember, it's not a single food or meal that will make or break your body transformation efforts; it's your entire body of nutrition work, and it's a commitment to healthy eating habits, creating a positive food environment, and choosing high-quality, nutritious foods in appropriate amounts **regularly** and **consistently** over time.

Do THIS before eating carbs (every time)

At the link below, we're going to show you our #1 carb-fighting trick that you can use each and every time you eat carbs. This simple carb-fighting "ritual" is clinically proven to:

- *Lower your blood sugar
- *Increase insulin sensitivity
- *Decrease fat storage
- *Increase fat burning

Even better, you can perform it in just a few seconds...and it WORKS like gangbusters.

==> [Do THIS before eating carbs \(every time\)](#)

References:

1. Seale JL, Conway JM. Relationship between overnight energy expenditure and BMR measured in a room-sized calorimeter. *Eur J Clin Nutr.* 1999;53(2):107-111.
2. Zhang K, Sun M, Werner P, et al. Sleeping metabolic rate in relation to body mass index and body composition. *Int J Obes Relat Metab Disord J Int Assoc Study Obes.* 2002;26(3):376-383. doi:10.1038/sj.ijo.0801922.
3. Mischler I, Vermorel M, Montaurier C, et al. Prolonged daytime exercise repeated over 4 days increases sleeping heart rate and metabolic rate. *Can J Appl Physiol Rev Can Physiol Appliquée.* 2003;28(4):616-629.
4. Groen BBL, Res PT, Pennings B, et al. Intra-gastric protein administration stimulates overnight muscle protein synthesis in elderly men. *Am J Physiol Endocrinol Metab.* 2012;302(1):E52-E60. doi:10.1152/ajpendo.00321.2011.
5. Res PT, Groen B, Pennings B, et al. Protein ingestion before sleep improves postexercise overnight recovery. *Med Sci Sports Exerc.* 2012;44(8):1560-1569. doi:10.1249/MSS.0b013e31824cc363.
6. Nonino-Borges CB, Martins Borges R, Bavaresco M, Suen VMM, Moreira AC, Marchini JS. Influence of meal time on salivary circadian cortisol rhythms and weight loss in obese women. *Nutr Burbank Los Angel Cty Calif.* 2007;23(5):385-391. doi:10.1016/j.nut.2007.02.007.
7. Stote KS, Baer DJ, Spears K, et al. A controlled trial of reduced meal frequency without caloric restriction in healthy, normal-weight, middle-aged adults. *Am J Clin Nutr.* 2007;85(4):981-988.
8. Sofer S, Eliraz A, Kaplan S, et al. Greater weight loss and hormonal changes after 6 months diet with carbohydrates eaten mostly at dinner. *Obes Silver Spring Md.* 2011;19(10):2006-2014. doi:10.1038/oby.2011.48.
9. de Castro JM. Circadian rhythms of the spontaneous meal pattern, macronutrient intake, and mood of humans. *Physiol Behav.* 1987;40(4):437-446.
10. Paddon-Jones D, Westman E, Mattes RD, Wolfe RR, Astrup A, Westerterp-Plantenga M. Protein, weight management, and satiety. *Am J Clin Nutr.* 2008;87(5):1558S - 1561S.
11. Soenen S, Martens EAP, Hochstenbach-Waelen A, Lemmens SGT, Westerterp-

- Plantenga MS. Normal protein intake is required for body weight loss and weight maintenance, and elevated protein intake for additional preservation of resting energy expenditure and fat free mass. *J Nutr*. 2013;143(5):591-596. doi:10.3945/jn.112.167593.
12. Westerterp-Plantenga MS, Nieuwenhuizen A, Tomé D, Soenen S, Westerterp KR. Dietary protein, weight loss, and weight maintenance. *Annu Rev Nutr*. 2009;29:21-41. doi:10.1146/annurev-nutr-080508-141056.
 13. Halton TL, Hu FB. The effects of high protein diets on thermogenesis, satiety and weight loss: a critical review. *J Am Coll Nutr*. 2004;23(5):373-385.
 14. English KL, Paddon-Jones D. Protecting muscle mass and function in older adults during bed rest: *Curr Opin Clin Nutr Metab Care*. 2010;13(1):34-39. doi:10.1097/MCO.0b013e328333aa66.
 15. Moore DR, Tang JE, Burd NA, Rerечich T, Tarnopolsky MA, Phillips SM. Differential stimulation of myofibrillar and sarcoplasmic protein synthesis with protein ingestion at rest and after resistance exercise. *J Physiol*. 2009;587(Pt 4):897-904. doi:10.1113/jphysiol.2008.164087.
 16. Beelen M, Tieland M, Gijzen AP, et al. Coingestion of Carbohydrate and Protein Hydrolysate Stimulates Muscle Protein Synthesis during Exercise in Young Men, with No Further Increase during Subsequent Overnight Recovery. *J Nutr*. 2008;138(11):2198-2204. doi:10.3945/jn.108.092924.
 17. Snijders T, Res PT, Smeets JS, et al. Protein Ingestion before Sleep Increases Muscle Mass and Strength Gains during Prolonged Resistance-Type Exercise Training in Healthy Young Men. *J Nutr*. 2015;145(6):1178-1184. doi:10.3945/jn.114.208371.
 18. Boirie Y, Dangin M, Gachon P, Vasson MP, Maubois JL, Beaufrère B. Slow and fast dietary proteins differently modulate postprandial protein accretion. *Proc Natl Acad Sci U S A*. 1997;94(26):14930-14935.
 19. Tang JE, Moore DR, Kujbida GW, Tarnopolsky MA, Phillips SM. Ingestion of whey hydrolysate, casein, or soy protein isolate: effects on mixed muscle protein synthesis at rest and following resistance exercise in young men. *J Appl Physiol Bethesda Md* 1985. 2009;107(3):987-992. doi:10.1152/jappphysiol.00076.2009.
 20. Holt SH, Miller JC, Petocz P, Farmakalidis E. A satiety index of common foods. *Eur J Clin Nutr*. 1995;49(9):675-690.
 21. Rolls BJ, Bell EA. Intake of fat and carbohydrate: role of energy density. *Eur J Clin Nutr*. 1999;53 Suppl 1:S166-S173.

22. Ledikwe JH, Blanck HM, Kettel Khan L, et al. Dietary energy density is associated with energy intake and weight status in US adults. *Am J Clin Nutr.* 2006;83(6):1362-1368.
23. Duncan KH, Bacon JA, Weinsier RL. The effects of high and low energy density diets on satiety, energy intake, and eating time of obese and nonobese subjects. *Am J Clin Nutr.* 1983;37(5):763-767.
24. Ello-Martin JA, Roe LS, Ledikwe JH, Beach AM, Rolls BJ. Dietary energy density in the treatment of obesity: a year-long trial comparing 2 weight-loss diets. *Am J Clin Nutr.* 2007;85(6):1465-1477.
25. Tohill BC, Seymour J, Serdula M, Kettel-Khan L, Rolls BJ. What epidemiologic studies tell us about the relationship between fruit and vegetable consumption and body weight. *Nutr Rev.* 2004;62(10):365-374.
26. Yao M, Roberts SB. Dietary energy density and weight regulation. *Nutr Rev.* 2001;59(8 Pt 1):247-258.
27. Lee A, Ader M, Bray GA, Bergman RN. Diurnal variation in glucose tolerance. Cyclic suppression of insulin action and insulin secretion in normal-weight, but not obese, subjects. *Diabetes.* 1992;41(6):750-759.
28. Saad A, Dalla Man C, Nandy DK, et al. Diurnal pattern to insulin secretion and insulin action in healthy individuals. *Diabetes.* 2012;61(11):2691-2700. doi:10.2337/db11-1478.
29. Verrillo A, De Teresa A, Martino C, et al. Differential roles of splanchnic and peripheral tissues in determining diurnal fluctuation of glucose tolerance. *Am J Physiol.* 1989;257(4 Pt 1):E459-E465.
30. Ivy JL. The insulin-like effect of muscle contraction. *Exerc Sport Sci Rev.* 1987;15:29-51.
31. Halberg N. Effect of intermittent fasting and refeeding on insulin action in healthy men. *J Appl Physiol.* 2005;99(6):2128-2136. doi:10.1152/jappphysiol.00683.2005.
32. Michalsen A, Schlegel F, Rodenbeck A, et al. Effects of short-term modified fasting on sleep patterns and daytime vigilance in non-obese subjects: results of a pilot study. *Ann Nutr Metab.* 2003;47(5):194-200. doi:70485.
33. Gross LS, Li L, Ford ES, Liu S. Increased consumption of refined carbohydrates and the epidemic of type 2 diabetes in the United States: an ecologic assessment. *Am J Clin Nutr.* 2004;79(5):774-779.
34. Hu FB. Are refined carbohydrates worse than saturated fat? *Am J Clin Nutr.* 2010;91(6):1541-1542. doi:10.3945/ajcn.2010.29622.

35. Howarth NC, Saltzman E, Roberts SB. Dietary fiber and weight regulation. *Nutr Rev.* 2001;59(5):129-139.
36. Slavin JL. Dietary fiber and body weight. *Nutr Burbank Los Angel Cty Calif.* 2005;21(3):411-418. doi:10.1016/j.nut.2004.08.018.
37. Peuhkuri K, Sihvola N, Korpela R. Diet promotes sleep duration and quality. *Nutr Res.* 2012;32(5):309-319. doi:10.1016/j.nutres.2012.03.009.
38. Moghaddam E, Vogt JA, Wolever TMS. The effects of fat and protein on glycemic responses in nondiabetic humans vary with waist circumference, fasting plasma insulin, and dietary fiber intake. *J Nutr.* 2006;136(10):2506-2511.
39. Gentilcore D, Chaikomin R, Jones KL, et al. Effects of fat on gastric emptying of and the glycemic, insulin, and incretin responses to a carbohydrate meal in type 2 diabetes. *J Clin Endocrinol Metab.* 2006;91(6):2062-2067. doi:10.1210/jc.2005-2644.
40. Samra RA. Fats and Satiety. In: Montmayeur J-P, le Coutre J, eds. *Fat Detection: Taste, Texture, and Post Ingestive Effects. Frontiers in Neuroscience.* Boca Raton (FL): CRC Press/Taylor & Francis; 2010. <http://www.ncbi.nlm.nih.gov/books/NBK53550/>. Accessed December 8, 2015.
41. Burton-Freeman B, Davis PA, Schneeman BO. Plasma cholecystokinin is associated with subjective measures of satiety in women. *Am J Clin Nutr.* 2002;76(3):659-667.
42. Tobias DK, Chen M, Manson JE, Ludwig DS, Willett W, Hu FB. Effect of low-fat diet interventions versus other diet interventions on long-term weight change in adults: a systematic review and meta-analysis. *Lancet Diabetes Endocrinol.* 2015;3(12):968-979. doi:10.1016/S2213-8587(15)00367-8.
43. Brown MJ, Ferruzzi MG, Nguyen ML, et al. Carotenoid bioavailability is higher from salads ingested with full-fat than with fat-reduced salad dressings as measured with electrochemical detection. *Am J Clin Nutr.* 2004;80(2):396-403.
44. Unlu NZ, Bohn T, Clinton SK, Schwartz SJ. Carotenoid absorption from salad and salsa by humans is enhanced by the addition of avocado or avocado oil. *J Nutr.* 2005;135(3):431-436.
45. Shah M, Copeland J, Dart L, Adams-Huet B, James A, Rhea D. Slower eating speed lowers energy intake in normal-weight but not overweight/obese subjects. *J Acad Nutr Diet.* 2014;114(3):393-402. doi:10.1016/j.jand.2013.11.002.
46. Robinson E, Aveyard P, Daley A, et al. Eating attentively: a systematic review and meta-analysis of the effect of food intake memory and awareness on eating. *Am J*

- Clin Nutr.* 2013;97(4):728-742. doi:10.3945/ajcn.112.045245.
47. Wansink B. What really determines what we eat. The hidden truth. *Diabetes Self Manag.* 2006;23(6):44, 47-48, 51.
 48. Wansink B. *Mindless Eating: Why We Eat More than We Think.* New York: Bantam Books; 2007.
 49. Popkin BM, Duffey KJ. Does hunger and satiety drive eating anymore? Increasing eating occasions and decreasing time between eating occasions in the United States. *Am J Clin Nutr.* 2010;91(5):1342-1347. doi:10.3945/ajcn.2009.28962.
 50. Leidy HJ. Increased dietary protein as a dietary strategy to prevent and/or treat obesity. *Mo Med.* 2014;111(1):54-58.
 51. Pennings B, Boirie Y, Senden JMG, Gijsen AP, Kuipers H, van Loon LJC. Whey protein stimulates postprandial muscle protein accretion more effectively than do casein and casein hydrolysate in older men. *Am J Clin Nutr.* 2011;93(5):997-1005. doi:10.3945/ajcn.110.008102.
 52. Shen J, Obin MS, Zhao L. The gut microbiota, obesity and insulin resistance. *Mol Aspects Med.* 2013;34(1):39-58. doi:10.1016/j.mam.2012.11.001.
 53. Sanchez M, Darimont C, Drapeau V, et al. Effect of Lactobacillus rhamnosus CGMCC1.3724 supplementation on weight loss and maintenance in obese men and women. *Br J Nutr.* 2014;111(8):1507-1519. doi:10.1017/S0007114513003875.
 54. Norton LE, Layman DK. Leucine regulates translation initiation of protein synthesis in skeletal muscle after exercise. *J Nutr.* 2006;136(2):533S - 537S.
 55. Benbrook CM, Butler G, Latif MA, Leifert C, Davis DR. Organic production enhances milk nutritional quality by shifting fatty acid composition: a United States-wide, 18-month study. *PloS One.* 2013;8(12):e82429. doi:10.1371/journal.pone.0082429.
 56. Whigham LD, Watras AC, Schoeller DA. Efficacy of conjugated linoleic acid for reducing fat mass: a meta-analysis in humans. *Am J Clin Nutr.* 2007;85(5):1203-1211.
 57. Josse AR, Atkinson SA, Tarnopolsky MA, Phillips SM. Increased Consumption of Dairy Foods and Protein during Diet- and Exercise-Induced Weight Loss Promotes Fat Mass Loss and Lean Mass Gain in Overweight and Obese Premenopausal Women. *J Nutr.* 2011;141(9):1626-1634. doi:10.3945/jn.111.141028.
 58. Zemel MB, Richards J, Mathis S, Milstead A, Gebhardt L, Silva E. Dairy augmentation of total and central fat loss in obese subjects. *Int J Obes* 2005. 2005;29(4):391-397. doi:10.1038/sj.ijo.0802880.

59. Wilkinson SB, Tarnopolsky MA, Macdonald MJ, Macdonald JR, Armstrong D, Phillips SM. Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *Am J Clin Nutr.* 2007;85(4):1031-1040.
60. Hartman JW, Tang JE, Wilkinson SB, et al. Consumption of fat-free fluid milk after resistance exercise promotes greater lean mass accretion than does consumption of soy or carbohydrate in young, novice, male weightlifters. *Am J Clin Nutr.* 2007;86(2):373-381.
61. Josse AR, Tang JE, Tarnopolsky MA, Phillips SM. Body composition and strength changes in women with milk and resistance exercise. *Med Sci Sports Exerc.* 2010;42(6):1122-1130. doi:10.1249/MSS.0b013e3181c854f6.
62. Daley CA, Abbott A, Doyle PS, Nader GA, Larson S. A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutr J.* 2010;9(1):10. doi:10.1186/1475-2891-9-10.
63. Noreen EE, Sass MJ, Crowe ML, Pabon VA, Brandauer J, Averill LK. Effects of supplemental fish oil on resting metabolic rate, body composition, and salivary cortisol in healthy adults. *J Int Soc Sports Nutr.* 2010;7:31. doi:10.1186/1550-2783-7-31.
64. Epel ES, McEwen B, Seeman T, et al. Stress and body shape: stress-induced cortisol secretion is consistently greater among women with central fat. *Psychosom Med.* 2000;62(5):623-632.
65. Munro IA, Garg ML. Prior supplementation with long chain omega-3 polyunsaturated fatty acids promotes weight loss in obese adults: a double-blinded randomised controlled trial. *Food Funct.* 2013;4(4):650-658. doi:10.1039/c3fo60038f.
66. Nelson KM, Weinsier RL, Long CL, Schutz Y. Prediction of resting energy expenditure from fat-free mass and fat mass. *Am J Clin Nutr.* 1992;56(5):848-856.
67. Layman DK, Shiue H, Sather C, Erickson DJ, Baum J. Increased dietary protein modifies glucose and insulin homeostasis in adult women during weight loss. *J Nutr.* 2003;133(2):405-410.
68. Layman DK, Boileau RA, Erickson DJ, et al. A reduced ratio of dietary carbohydrate to protein improves body composition and blood lipid profiles during weight loss in adult women. *J Nutr.* 2003;133(2):411-417.
69. Long C, Alterman T. Meet Real Free-Range Eggs. *Mother Earth News.* November 2007. <http://www.motherearthnews.com/real-food/free-range-eggs-zmaz07onzgoe.aspx>.

70. Auburn KJ, Fan S, Rosen EM, et al. Indole-3-carbinol is a negative regulator of estrogen. *J Nutr.* 2003;133(7 Suppl):2470S - 2475S.
71. Fowke JH, Longcope C, Hebert JR. Brassica vegetable consumption shifts estrogen metabolism in healthy postmenopausal women. *Cancer Epidemiol Biomark Prev Publ Am Assoc Cancer Res Cosponsored Am Soc Prev Oncol.* 2000;9(8):773-779.
72. Kall MA, Vang O, Clausen JØ. Effects of dietary broccoli on human in vivo drug metabolizing enzymes: evaluation of caffeine, oestrone and chlorzoxazone metabolism. *Carcinogenesis.* 1996;17(4):793-799. doi:10.1093/carcin/17.4.793.
73. Bradlow HL, Michnovicz JJ, Halper M, Miller DG, Wong GY, Osborne MP. Long-term responses of women to indole-3-carbinol or a high fiber diet. *Cancer Epidemiol Biomark Prev Publ Am Assoc Cancer Res Cosponsored Am Soc Prev Oncol.* 1994;3(7):591-595.
74. Michnovicz JJ, Bradlow HL. Altered estrogen metabolism and excretion in humans following consumption of indole-3-carbinol. *Nutr Cancer.* 1991;16(1):59-66. doi:10.1080/01635589109514141.
75. D'Eon TM, Souza SC, Aronovitz M, Obin MS, Fried SK, Greenberg AS. Estrogen regulation of adiposity and fuel partitioning. Evidence of genomic and non-genomic regulation of lipogenic and oxidative pathways. *J Biol Chem.* 2005;280(43):35983-35991. doi:10.1074/jbc.M507339200.
76. Holtcamp W. Obesogens: An Environmental Link to Obesity. *Environ Health Perspect.* 2012;120(2):a62-a68. doi:10.1289/ehp.120-a62.
77. Lee J-H, Moon M-H, Jeong J-K, et al. Sulforaphane induced adipolysis via hormone sensitive lipase activation, regulated by AMPK signaling pathway. *Biochem Biophys Res Commun.* 2012;426(4):492-497. doi:10.1016/j.bbrc.2012.08.107.
78. Choi K-M, Lee Y-S, Kim W, et al. Sulforaphane attenuates obesity by inhibiting adipogenesis and activating the AMPK pathway in obese mice. *J Nutr Biochem.* 2014;25(2):201-207. doi:10.1016/j.jnutbio.2013.10.007.
79. Rankin LC, Groom JR, Chopin M, et al. The transcription factor T-bet is essential for the development of NKp46+ innate lymphocytes via the Notch pathway. *Nat Immunol.* 2013;14(4):389-395. doi:10.1038/ni.2545.
80. Fowke JH, Morrow JD, Motley S, Bostick RM, Ness RM. Brassica vegetable consumption reduces urinary F2-isoprostane levels independent of micronutrient intake. *Carcinogenesis.* 2006;27(10):2096-2102. doi:10.1093/carcin/bgl065.

81. Gregor MF, Hotamisligil GS. Inflammatory mechanisms in obesity. *Annu Rev Immunol.* 2011;29:415-445. doi:10.1146/annurev-immunol-031210-101322.
82. Montelius C, Erlandsson D, Vitija E, Stenblom E-L, Egecioglu E, Erlanson-Albertsson C. Body weight loss, reduced urge for palatable food and increased release of GLP-1 through daily supplementation with green-plant membranes for three months in overweight women. *Appetite.* 2014;81:295-304. doi:10.1016/j.appet.2014.06.101.
83. Rebello CJ, Chu J, Beyl R, Edwall D, Erlanson-Albertsson C, Greenway FL. Acute Effects of a Spinach Extract Rich in Thylakoids on Satiety: A Randomized Controlled Crossover Trial. *J Am Coll Nutr.* June 2015:1-8. doi:10.1080/07315724.2014.1003999.
84. Berthoud H-R. Metabolic and hedonic drives in the neural control of appetite: who is the boss? *Curr Opin Neurobiol.* 2011;21(6):888-896. doi:10.1016/j.conb.2011.09.004.
85. Moghe SS, Juma S, Imrhan V, Vijayagopal P. Effect of blueberry polyphenols on 3T3-F442A preadipocyte differentiation. *J Med Food.* 2012;15(5):448-452. doi:10.1089/jmf.2011.0234.
86. McLeay Y, Barnes MJ, Mundel T, Hurst SM, Hurst RD, Stannard SR. Effect of New Zealand blueberry consumption on recovery from eccentric exercise-induced muscle damage. *J Int Soc Sports Nutr.* 2012;9(1):19. doi:10.1186/1550-2783-9-19.
87. DeFuria J, Bennett G, Strissel KJ, et al. Dietary blueberry attenuates whole-body insulin resistance in high fat-fed mice by reducing adipocyte death and its inflammatory sequelae. *J Nutr.* 2009;139(8):1510-1516. doi:10.3945/jn.109.105155.
88. Sasaki R, Nishimura N, Hoshino H, et al. Cyanidin 3-glucoside ameliorates hyperglycemia and insulin sensitivity due to downregulation of retinol binding protein 4 expression in diabetic mice. *Biochem Pharmacol.* 2007;74(11):1619-1627. doi:10.1016/j.bcp.2007.08.008.
89. Tsuda T. Regulation of adipocyte function by anthocyanins; possibility of preventing the metabolic syndrome. *J Agric Food Chem.* 2008;56(3):642-646. doi:10.1021/jf073113b.
90. Wang H, Nair MG, Strasburg GM, et al. Antioxidant and antiinflammatory activities of anthocyanins and their aglycon, cyanidin, from tart cherries. *J Nat Prod.* 1999;62(2):294-296. doi:10.1021/np980501m.
91. Pigeon WR, Carr M, Gorman C, Perlis ML. Effects of a tart cherry juice

- beverage on the sleep of older adults with insomnia: a pilot study. *J Med Food*. 2010;13(3):579-583. doi:10.1089/jmf.2009.0096.
92. Garrido M, Paredes SD, Cubero J, et al. Jerte Valley cherry-enriched diets improve nocturnal rest and increase 6-sulfatoxymelatonin and total antioxidant capacity in the urine of middle-aged and elderly humans. *J Gerontol A Biol Sci Med Sci*. 2010;65(9):909-914. doi:10.1093/gerona/glq099.
 93. Lin H-H, Tsai P-S, Fang S-C, Liu J-F. Effect of kiwifruit consumption on sleep quality in adults with sleep problems. *Asia Pac J Clin Nutr*. 2011;20(2):169-174.
 94. Gibson GR, Probert HM, Loo JV, Rastall RA, Roberfroid MB. Dietary modulation of the human colonic microbiota: updating the concept of prebiotics. *Nutr Res Rev*. 2004;17(2):259-275. doi:10.1079/NRR200479.
 95. Lee YK, Low KY, Siah K, Drummond LM, Gwee K-A. Kiwifruit (*Actinidia deliciosa*) changes intestinal microbial profile. *Microb Ecol Health Dis*. 2012;23(0). doi:10.3402/mehd.v23i0.18572.
 96. Cani PD, Delzenne NM. The gut microbiome as therapeutic target. *Pharmacol Ther*. 2011;130(2):202-212. doi:10.1016/j.pharmthera.2011.01.012.
 97. Ridaura VK, Faith JJ, Rey FE, et al. Gut microbiota from twins discordant for obesity modulate metabolism in mice. *Science*. 2013;341(6150):1241214. doi:10.1126/science.1241214.
 98. Liou AP, Paziuk M, Luevano J-M, Machineni S, Turnbaugh PJ, Kaplan LM. Conserved shifts in the gut microbiota due to gastric bypass reduce host weight and adiposity. *Sci Transl Med*. 2013;5(178):178ra41. doi:10.1126/scitranslmed.3005687.
 99. Brody S, Preut R, Schommer K, Schürmeyer TH. A randomized controlled trial of high dose ascorbic acid for reduction of blood pressure, cortisol, and subjective responses to psychological stress. *Psychopharmacology (Berl)*. 2002;159(3):319-324. doi:10.1007/s00213-001-0929-6.
 100. Lee M-J, Fried SK. The glucocorticoid receptor, not the mineralocorticoid receptor, plays the dominant role in adipogenesis and adipokine production in human adipocytes. *Int J Obes* 2005. 2014;38(9):1228-1233. doi:10.1038/ijo.2014.6.
 101. Rosmond R. Stress induced disturbances of the HPA axis: a pathway to Type 2 diabetes? *Med Sci Monit Int Med J Exp Clin Res*. 2003;9(2):RA35-RA39.
 102. Despres J-P. Body Fat Distribution and Risk of Cardiovascular Disease: An Update. *Circulation*. 2012;126(10):1301-1313. doi:10.1161/CIRCULATIONAHA.111.067264.
 103. Oliveros E, Somers VK, Sochor O, Goel K, Lopez-Jimenez F. The Concept of

- Normal Weight Obesity. *Prog Cardiovasc Dis*. 2014;56(4):426-433. doi:10.1016/j.pcad.2013.10.003.
104. Walldius G, Jungner I. Apolipoprotein B and apolipoprotein A-I: risk indicators of coronary heart disease and targets for lipid-modifying therapy. *J Intern Med*. 2004;255(2):188-205.
105. Toft-Petersen AP, Tilsted HH, Aarøe J, et al. Small dense LDL particles - a predictor of coronary artery disease evaluated by invasive and CT-based techniques: a case-control study. *Lipids Health Dis*. 2011;10(1):21. doi:10.1186/1476-511X-10-21.
106. Silver HJ, Dietrich MS, Niswender KD. Effects of grapefruit, grapefruit juice and water preloads on energy balance, weight loss, body composition, and cardiometabolic risk in free-living obese adults. *Nutr Metab*. 2011;8(1):8. doi:10.1186/1743-7075-8-8.
107. Fujioka K, Greenway F, Sheard J, Ying Y. The effects of grapefruit on weight and insulin resistance: relationship to the metabolic syndrome. *J Med Food*. 2006;9(1):49-54. doi:10.1089/jmf.2006.9.49.
108. Kahn BB, Flier JS. Obesity and insulin resistance. *J Clin Invest*. 2000;106(4):473-481. doi:10.1172/JCI10842.
109. Jung UJ, Kim HJ, Lee JS, et al. Naringin supplementation lowers plasma lipids and enhances erythrocyte antioxidant enzyme activities in hypercholesterolemic subjects. *Clin Nutr Edinb Scotl*. 2003;22(6):561-568.
110. Zygmunt K, Faubert B, MacNeil J, Tsiani E. Naringenin, a citrus flavonoid, increases muscle cell glucose uptake via AMPK. *Biochem Biophys Res Commun*. 2010;398(2):178-183. doi:10.1016/j.bbrc.2010.06.048.
111. Kurth-Kraczek EJ, Hirshman MF, Goodyear LJ, Winder WW. 5' AMP-activated protein kinase activation causes GLUT4 translocation in skeletal muscle. *Diabetes*. 1999;48(8):1667-1671.
112. O'Neill HM, Holloway GP, Steinberg GR. AMPK regulation of fatty acid metabolism and mitochondrial biogenesis: implications for obesity. *Mol Cell Endocrinol*. 2013;366(2):135-151. doi:10.1016/j.mce.2012.06.019.
113. Richard AJ, Amini-Vaughan Z, Ribnicky DM, Stephens JM. Naringenin Inhibits Adipogenesis and Reduces Insulin Sensitivity and Adiponectin Expression in Adipocytes. *Evid Based Complement Alternat Med*. 2013;2013:1-10. doi:10.1155/2013/549750.
114. Yoshida H, Watanabe W, Oomagari H, Tsuruta E, Shida M, Kurokawa M. Citrus flavonoid naringenin inhibits TLR2 expression in adipocytes. *J Nutr Biochem*.

- 2013;24(7):1276-1284. doi:10.1016/j.jnutbio.2012.10.003.
115. Schwartz GJ, Fu J, Astarita G, et al. The lipid messenger OEA links dietary fat intake to satiety. *Cell Metab.* 2008;8(4):281-288. doi:10.1016/j.cmet.2008.08.005.
116. Lo Verme J, Gaetani S, Fu J, Oveisi F, Burton K, Piomelli D. Regulation of food intake by oleoylethanolamide. *Cell Mol Life Sci CMLS.* 2005;62(6):708-716. doi:10.1007/s00018-004-4494-0.
117. Wien M, Haddad E, Oda K, Sabaté J. A randomized 3×3 crossover study to evaluate the effect of Hass avocado intake on post-ingestive satiety, glucose and insulin levels, and subsequent energy intake in overweight adults. *Nutr J.* 2013;12:155. doi:10.1186/1475-2891-12-155.
118. Fulgoni VL, Dreher M, Davenport AJ. Avocado consumption is associated with better diet quality and nutrient intake, and lower metabolic syndrome risk in US adults: results from the National Health and Nutrition Examination Survey (NHANES) 2001-2008. *Nutr J.* 2013;12:1. doi:10.1186/1475-2891-12-1.
119. Fernández-Sánchez A, Madrigal-Santillán E, Bautista M, et al. Inflammation, Oxidative Stress, and Obesity. *Int J Mol Sci.* 2011;12(12):3117-3132. doi:10.3390/ijms12053117.
120. Rao A, Rao L. Carotenoids and human health. *Pharmacol Res.* 2007;55(3):207-216. doi:10.1016/j.phrs.2007.01.012.
121. Betteridge DJ. What is oxidative stress? *Metabolism.* 2000;49(2 Suppl 1):3-8.
122. Floyd RA. Antioxidants, oxidative stress, and degenerative neurological disorders. *Proc Soc Exp Biol Med Soc Exp Biol Med N Y N.* 1999;222(3):236-245.
123. Kirkmeyer SV, Mattes RD. Effects of food attributes on hunger and food intake. *Int J Obes Relat Metab Disord J Int Assoc Study Obes.* 2000;24(9):1167-1175.
124. Cassady BA, Hollis JH, Fulford AD, Considine RV, Mattes RD. Mastication of almonds: effects of lipid bioaccessibility, appetite, and hormone response. *Am J Clin Nutr.* 2009;89(3):794-800. doi:10.3945/ajcn.2008.26669.
125. Mattes RD, Dreher ML. Nuts and healthy body weight maintenance mechanisms. *Asia Pac J Clin Nutr.* 2010;19(1):137-141.
126. Tapsell L, Batterham M, Tan S-Y, Warensjö E. The effect of a calorie controlled diet containing walnuts on substrate oxidation during 8-hours in a room calorimeter. *J Am Coll Nutr.* 2009;28(5):611-617.
127. Mattes RD, Kris-Etherton PM, Foster GD. Impact of peanuts and tree nuts on body weight and healthy weight loss in adults. *J Nutr.* 2008;138(9):1741S - 1745S.