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Water & Hydration

Folks are quick to ask about the “best” diet or whether a certain food is “good” or “bad,” but rarely do people ask about the importance of drinking enough water and properly hydrating their bodies. How important is hydration?

Let’s put it this way, water makes up nearly 60 – 70% of the human body, and fluid losses of just 0.5 – 1.0% of bodyweight can negatively affect cardiovascular function and endurance. Thirst isn’t typically perceived until 2 – 3% of body water is lost, and by that point, physical performance and cognitive function are likely to be compromised.

What’s more, researchers from the University of Utah found that a similar level of dehydration (2 – 3%) can depress metabolic rate. In one study, participants were given either four, eight, or twelve 8-ounces glasses of water a day. On the fifth day, the researchers found that the folks drinking only four glasses of water per day were modestly dehydrated and their metabolic rate had decreased significantly. The participants who drank eight or twelve glasses of water were adequately hydrated, had more energy, were able to concentrate better, and burned calories at an accelerated rate (compared to the folks who drank four glasses per day).¹

Not only that, water intake may have a direct positive impact on your fat loss efforts by something that researchers refer to as “pre-loading,” which simply refers to drinking water before meals.

In one recent randomized control trial published in the journal Obesity, researchers in England set out to examine the effects of preloading water on weight loss. All participants received the same counseling on the importance of regular physical activity and healthy eating habits, and yet the researchers found that folks who drank 16 ounces
of water 30 minutes before their three main meals lost 5 TIMES more weight (than folks who preloaded only once per day or not at all) over the course of 12 weeks.²

In another study published in the journal *Obesity*, researchers from Virginia Tech found that when folks combined water preloading (i.e., 16 ounces prior to each daily meal) with a reduced-calorie diet, they lost 64% more fat than participants who followed the same reduced-calorie diet without the water preload.³

In addition to weight management, drinking enough water and optimally hydrating may improve physical performance, boost energy levels and cognitive function, and relieve constipation. Overall, drinking water and properly hydrating are very important for your health, metabolism, and performance, and research suggests that properly timing your water intake may even have a beneficial effect on your weight loss efforts. Based on the available evidence, it seems that drinking 16 ounces of water before your meals and between 64 and 96 ounces daily is a good starting point.

While eight 8-ounce glasses of water a day is a good general guideline, it should be noted that everyone has a different requirement, which is influenced by body size, activity level, climate, food intake (e.g., fruits, vegetables, and soup contain water), and more. Thus, a good indicator of hydration is urine color, and speaking generally, the color of a hydrated person’s urine is very light yellow.

Although it may be boring and predictable, clean, filtered water is indeed the foundational “fat-burning” beverage. In fact, as you’ll see in the list provided below, the overwhelming majority of the benefits that can be obtained by drinking these fat-burning drinks comes down to the fact that they increase one’s consumption of water and often by displacing other calorie-containing drinks (e.g., juice,
soda, sports drinks, alcoholic drinks, specialty coffee drinks).

This is a concept known as “dietary displacement,” which can be positive or negative. Positive dietary displacement involves “displacing” non-nutritious foods/drinks with nutritious ones; on the flip side, negative dietary displacement refers to eating/drinking more non-nutritious foods/drinks, skipping out on nutritious ones.

**Detoxes & Cleanses**

A number of the “fat-burning” drinks that will be covered in this report are often included as part of a detox diet or cleanse. With that in mind, we thought it would be important to delve into this topic to cover some of the common misconceptions and uncover some of the “dirty truths.”

There’s no doubt about it, the promises of detox diets and cleanses are alluring:

- “Jump start your weight loss”…
- “Eliminate impurities”…
- “Drop 21 pounds in 10 days”…
- “Expel toxins”…
- “Revitalize and re-energize your body”…
- “Whisk away polluting nasties”…
- “Fast, easy weight loss”…
- “Purify the body”…
- “Lose weight like the celebrities”…
- “Flush away toxins”

But do these plans work? Can they provide the health boosts they guarantee? Are they the perfect recipe that the proponents would like you to believe? Or, are they a recipe for disaster and self-sabotage, contributing to a vicious cycle and reinforcing poor eating habits and relationships with food? I have a feeling that if you asked Teddy Roosevelt about these “quick fixes,” he might say, “Nothing worth having was ever achieved without effort.”

One of the most challenging aspects of assessing the various detox diets and cleanses,
which are typically characterized by severe food and calorie restriction, is that you’d be hard-pressed to find a specific scientific definition of either, which are typically interchangeable terms. In the Detox Dossier, an investigation by the Voice of Young Science (VoYS) into 15 different products and special diets that are widely promoted as detoxes, a group of researchers found that no two companies use the same definition for “detox.”4,5 Not only that, the VoYS found that no program or company could name the supposed “toxins” targeted by its detox, and the proponents provided little—and in most cases, no—evidence to back up detox claims.

The VoYS concluded, “No one we contacted was able to provide any evidence for their claims, or give a comprehensive definition of what they meant by ‘detox.’ We concluded that ‘detox’ as used in product marketing is a myth. Many of the claims about how the body works were wrong and some were even dangerous.”

In a study published in the Journal of Human Nutrition and Dietetics, researchers from Australia conducted a thorough review of the currently available research to assess whether there was any evidence to support the use of detox diets for weight management or toxin elimination. They concluded, “Although the detox industry is booming, there is very little clinical evidence to support the use of these diets. To the best of our knowledge, no randomized controlled trials have been conducted to assess the effectiveness of commercial detox diets in humans.”6

While the detox industry promotes “purification,” “cleansing,” and “elimination,” it’s incredibly important to point that the human body has evolved highly sophisticated mechanisms for eliminating toxins. The liver, kidneys, gastrointestinal system, skin, and lungs all play a role in the excretion of unwanted substances—without chemical intervention. For example, the liver and kidneys both serve as exceptionally effective “detox” organs, converting toxic chemicals into less harmful ones and promoting the excretion of unwanted chemicals.

With that being said, just because the body is equipped with the machinery it needs to “cleanse” and “detoxify” itself and to do so remarkably well, that does not mean that exposure to pollutants, pesticides, food additives, etc., is not a big deal. That point should not be lost; however, it is to say that these approaches do not appear to be effective solutions or quick “fixes.”
Some might consider highly-restrictive plans like these (i.e., detox diets, cleanses) to be “quick fixes,” but truth be told, they’re not really fixing anything. In fact, they quite possibly may be making things worse. You see, this type of approach lends itself to weight cycling, which is more commonly referred to as “yo-yo dieting.” Numerous studies have provided evidence that weight cycling increases one’s risk of insulin resistance, type 2 diabetes, and cardiovascular disease.\(^7\)\(^-\)\(^9\) While very-low-calorie diets (VLCD) like these may lead to significant short-term weight loss, VLCDs do not lead to greater long-term weight loss compared to more moderate reduced-calorie diets.\(^10\)

Even more, this cyclical pattern of long-term calorie restriction can lead to significant reductions in metabolic rate that rival that of life-threatening malnutrition and starvation.\(^11\) In other words, chronic dieters—who are often the type to gravitate toward extreme approaches such as detox diets and cleanses—are at risk of a reduced metabolic rate.

You see, through a process termed adaptive thermogenesis, the body is quite adept at making compensatory adjustments to help match calorie expenditure with calorie intake.\(^12\) In the face of dangerously low energy supplies and stores, this form of energy conservation is a biologically meaningful survival mechanism.\(^11,13,14\) However, most people who engage in these restrictive diets generally aren’t trying to get themselves ready for some sort of apocalypse involving a food shortage.

Studies show that the degree of metabolic adaptation is proportionate to the degree of energy restriction. In fact, intense energy-restrictive diets like these trigger the body to suppress its resting metabolic rate (RMR) by as much as 20%.\(^10,15\)

It’s also noteworthy to point out that a significant percentage of the short-term weight loss associated with VLCDs is fat-free mass (e.g., muscle mass, glycogen, body water), not body fat. This is important for a number of reasons related to health, performance, and metabolism. For instance, muscle is “metabolically active,” burning calories even at rest and accounting for about 30% of total metabolic rate.\(^16-18\) Further, the dreaded combination of reduced RMR and muscle mass may also predispose one to weight regain.\(^19,20\)

Simply put, it’s the cleanse that needs cleansing. These plans do little to teach
folks how to eat or help them overcome individual limiting factors (e.g., creating a healthy food environment, preparing healthy food choices, cultivating a healthy relationship with food). Not only that, programs like these that heavily restrict calories, specific foods, and food groups make folks more prone to over-consumption of high-calorie, highly palatable foods through the activation of hunger hormones and food reward pathways. That’s right, “junk food” becomes even tastier, and an even greater amount of it is craved by the body to satisfy its “needs.”

Along those lines, rather than resorting to an extremist approach that does nothing to promote good nutrition behaviors, teach you how to eat, encourage a healthy relationship with food, or promote a healthy food environment, focus on making changes that support long-term healthy habits. That’s not to say that some of the “fat-burning” drinks discussed in this report can’t complement healthy eating habits; indeed, they can. However, this is just a reminder that there is no “magic bullet,” and despite the enticing claims made, detox diets and cleanses rarely live up to their promises.

1. Lemon Water

Lemon water is all the rage. If you believe everything that you read, then you’ll wonder why you haven’t joined all the celebrities in guzzling down this miracle drink that “cleanses,” “detoxes,” “boosts the metabolism,” “melts fat,” “alkalizes the body,” “raises your IQ,” and the list goes on and on. But, does it live up to the hype?

According to the scientific evidence, the answer is a resounding no. There is virtually no scientific evidence to substantiate any of these outrageous claims.

Sure, when lemon water is accompanied by a massive caloric deficit (e.g., juice fast), you can expect to lose weight. As surprising as it may be, the weight loss is not the result of the lemon water; it’s a byproduct of not eating anything. (Please see introduction for more on detox diets and cleanses.)
At its simplest, lemon water is a glass of water mixed with the juice of one half of a lemon, and along those lines, it provides all of the benefits (e.g., weight loss, digestive health, physical performance, cognitive function) that drinking regular water does. With that in mind, adding some lemon water can indeed be a flavorful alternative to plain water with only a negligible addition of calories and sugar.

Although the nutritional characteristics are sometimes overstated, lemons are an excellent source of vitamin C, and like other citrus fruits, lemons are also a good source of phytonutrients, which possess a variety of health properties (e.g., antioxidant, anti-inflammatory).

Lastly, some may say to drink lemon water (or other “fat-burning” drinks) cold, as it is purported to burn extra calories, while other suggest warm water, as a means to improve digestion. Unfortunately, there’s very little—if any—evidence to support either of these suggestions; thus, the temperature of the water is unlikely to make any significant difference.22

2. Mint Citrus Water

Similar to lemon water, mint citrus water is a tasty, refreshing, low-calorie, low-sugar alternative to plain water, and since it is also mostly water, it too provides all of the health benefits that you can expect with drinking regular water. For the citrus part of the drink, you can use lemons and/or limes, which are also an excellent source of vitamin C, and they also contain phytonutrients that help the body manage oxidative stress.

Peppermint has documented use dating back to 79 AD when the Greeks and Romans used the leaves as decoration during their feasts as well as to add flavor to their sauces and wines. Peppermint has long been used in folk medicine and aromatherapy, and peppermint oil, derived from the leaves of peppermint, has been used for its soothing qualities to alleviate digestive discomfort and freshen breath through the day.
In addition to soothing digestion, there is also evidence that simply smelling peppermint may improve appetite control and reduce caloric. In one randomized, cross-over study published in the journal Appetite and conducted by Bryan Raudenbush at Wheeling Jesuit University, 40 volunteers sniffed peppermint every two hours for five days. For another five days, they did the same with a placebo. When they sniffed the peppermint, they consumed 1,800 fewer calories (over the five days)—about **360 fewer calories each day**.²³

Here’s a simple recipe for lime and mint water.

**Ingredients:**
- 2 limes, sliced
- 4 – 5 fresh mint leaves
- 24 oz. water

**Directions:**
- Place lime and mint in a 32-ounce Mason jar.
- Add water and cover with lid.
- Let sit overnight or at least 30 minutes before drinking.

**3. Cinnamon & Honey**

While cinnamon and honey may both possess some unique health benefits, claims surrounding the “hot water, cinnamon, and honey” diet, detox, cleanse, miracle, etc., are overstated and unsubstantiated by scientific research. Please refer to the introductory section covering detoxes and cleanses for a more in-depth and critical analysis of this type of diet fad/scam.

With that being said, as stated, both cinnamon and honey do indeed provide potential health benefits. For instance, studies consistently show that cinnamon powder (provided in amounts ranging from 1 – 6 grams) is markedly effective at acutely improving carbohydrate tolerance and individual glycemic response.²⁴–²⁶
In one randomized, double-blind, placebo-controlled study, participants were either given a standardized cinnamon extract or a placebo twice daily for two months. At the conclusion of the study, the participants taking the cinnamon extract experienced an improvement in carbohydrate management that was nearly five times greater than that of the placebo, and their post-meal glycemic response (after a carbohydrate-containing meal) also decreased an impressive 12%, which was four times greater than the placebo group.27

In another randomized, double-blind, placebo-controlled study, participants were either given a standardized cinnamon extract or a placebo twice daily for 12 weeks. The participants taking the cinnamon extract significantly improved carbohydrate tolerance, and even though this wasn’t a weight loss study, they significantly improved body composition (i.e., decreased body fat, increased lean body mass).28

One way in which cinnamon appears to work is through improved insulin sensitivity. In one study, healthy lean young men took 5 grams of cinnamon powder (about two teaspoons) or a placebo before undergoing an oral glucose tolerance test (OGTT), which involves drinking 75 grams of high-glycemic carbs. After taking the cinnamon, the participants significantly improved their glycemic response and demonstrated improved insulin sensitivity. What’s more, when the participants took the cinnamon 12 hours before the OGTT, they still experienced the same significant benefits in glycemic control, suggesting that the benefits of cinnamon appear to be both immediate and sustained for up to 12 hours.29

Another one of the ways that cinnamon exerts its effects is by inhibiting the activity of certain carbohydrate-digesting enzymes (e.g., alpha-amylase, alpha-glucosidase).30–32 By inhibiting these enzymes, cinnamon has the potential to reduce or slow down the digestion of dietary carbohydrates (i.e., carb “blocking” effects). In a 2014 randomized, double-blind, placebo-controlled study, French researchers found that participants taking a cinnamon extract decreased post-meal blood sugar by 21% after 60 minutes and 15% after 2 hours (compared to the placebo group).30 They found that this improvement in carbohydrate metabolism was achieved without additional insulin secretion, supporting the notion that cinnamon “seems to specifically inhibit” carbohydrate-digesting enzymes (e.g., alpha-amylase).

In addition to its impact on glycemic control and carbohydrate management, cinnamon
may also exert additional anti-obesity effects. In a study published in the journal *Scientific Reports*, researchers from Switzerland found that certain compounds in cinnamon may increase fat burning and reduce production of ghrelin.\(^{33}\)

Ghrelin is often referred to as the “hunger hormone.” It is produced in the GI tract and functions as a signaling compound in the nervous system stimulating hunger.\(^{34}\) Ghrelin is released when the stomach is empty, and levels go down after eating.\(^{35}\) In addition to stimulating hunger, ghrelin also “turns on” reward centers in the brain, increasing the pleasure and reward response to eating and reinforcing the consumption of rewarding, tasty food.\(^{36–38}\)

It’s important to note that there are numerous forms available. Although short-term trials have not demonstrated any adverse outcomes with *Cinnamon cassia* use, its high coumarin content is a concern during prolonged use.\(^{39}\) Coumarins are naturally-occurring plant compounds that are considered to be moderately toxic.\(^{40}\) Thus, while *Cinnamon cassia* has been used in numerous human trials (and shown to be both safe and effective), when purchasing cinnamon powder (e.g., from the grocery store), “true” cinnamon (i.e., *Ceylon Cinnamon, Cinnamon verum, or Cinnamon Zeylanicum*) is likely a better option, as its coumarin content is negligible.

Raw honey contains myriad enzymes (e.g., glucose oxidase, diastase, invertase, phosphatase, catalase and peroxidase) and antioxidants. It’s important to note that the composition and physicochemical properties of honey are variable depending on its floral source. Research has also shown that honey possesses antibacterial, antiviral, antifungal, anti-inflammatory, and antimutagenic properties, it has antitumor and antidiabetic effects, and it expedites wound healing.\(^{41}\) In some cultures, honey is used as an anti-aging supplement, and there’s some research that suggests that honey may improve certain biomarkers of cardiovascular health (e.g., blood pressure, blood lipids).

In healthy subjects and people with carbohydrate intolerance (i.e., impaired glucose tolerance), studies have shown that honey reduces blood glucose and is more tolerable than most common sugars or sweeteners. What’s more, studies have shown that honey markedly increases the number of beneficial bacteria in the gut. This prebiotic effect is attributable to the oligosaccharide carbohydrates found in honey, and this has implications for various aspects of health (e.g., digestion, cognition, mood, etc.).\(^{42}\)
While this concoction may not be the “miracle” that some proponents may lead you to believe, cinnamon, honey, and water do possess numerous health benefits and may be used as part of an overall healthy weight-loss program. If you’re interested in giving it a try, here’s one popular recipe.

**Ingredients:**
- 1 cup hot water
- 2 parts Ceylon cinnamon (e.g., 2 tsp)
- 1 part honey (e.g., 1 tsp)

**Directions:**
- Steep cinnamon in hot water for 30 minutes.
- Once the water has cooled, add the honey. (It is suggested that hot water may destroy the enzymes in honey.)
- Drink half of the mixture before bed, put the remainder in the refrigerator, and drink it in the morning.

**4. Ginger & Lime**

Ginger is well-known for its beneficial effects on digestion, and it has been used as a remedy for constipation, belching, gas, stomach discomfort, indigestion, nausea, and vomiting. Ginger possesses powerful antioxidant properties and free radical scavenging capabilities, including the ability to inhibit lipid peroxidation. Research has also shown that supplementation with ginger may exert an anti-inflammatory effect by reducing certain pro-inflammatory biomarkers (e.g., TNF-α, IL-1β), which mediate a variety of inflammatory conditions.

What’s more, ginger may also support weight management. Animal studies have shown that ginger possesses anti-obesity properties, decreasing body weight and blood glucose and attenuating adverse changes in hormones (e.g., leptin, insulin) when rats are overfed with a high-fat diet (designed to induce obesity). This led one group
of researchers to conclude that ginger may be a “promising adjuvant therapy for the treatment of obesity and its complications.”

In a recent randomized, double-blind, placebo-controlled trial published in the journal *Phytotherapy Research*, a group of researchers from Iran found that supplementation with ginger powder (2g/day) for 12 weeks resulted significant reductions in appetite and waist and hip circumferences in group of obese women. This led the authors to conclude that “ginger consumption has potential in managing obesity,” and a recent clinical trial supports this assertion.

In a subsequent randomized controlled trial published in the *European Journal of Nutrition*, this same research group found that women who supplemented with ginger powder (2g/day) for 12 weeks significantly reduced body weight and improved insulin sensitivity compared to a placebo group.

One unique way by which ginger may promote weight loss is through activation of brown adipose tissue (BAT), which leads to increased metabolic rate and calorie expenditure (i.e., increased calorie burn). Simply put, BAT is unique in that it burns body fat (i.e., white adipose tissue) to produce heat (i.e., thermogenesis), and as a result, BAT thermogenesis is regarded as a novel, intriguing anti-obesity target.

Combining ginger, lime, and water is a refreshing way to hydrate while taking advantage of the myriad potential health benefits associated with ginger consumption. The following recipe is a simple, albeit tasty, one!

**Ingredients:**
- 12-ounce glass of water, room temperature
- Juice of 1 lime
- ½-inch knob of ginger root

**Directions:**
- Add the lime juice to the glass of water.
- Finely grate the ginger using a zester and add to glass of water.
- Enjoy!
5. Fresh Veggie Juice

While juicing is not nearly the be-all, end-all that many would like for you to believe, it is a way by which you can increase your consumption of fruits and vegetables. Of course, there are myriad health benefits associated with regular fruit and vegetable consumption, including weight loss and weight management.

However, there is no strong scientific evidence to support the marketed benefits associated with juicing, and certainly, there is no evidence to suggest that juicing is superior to eating fruits and vegetables.\(^\text{51}\) In fact, one may argue that some of the benefits of fruit and vegetable consumption may be reduced given that juicing strips away most, if not all, of the dietary fiber, which promotes a healthy digestive tract and regularity, slows gastric emptying (i.e., reduces glycemic response), promotes satiety, reduces calorie intake, and enhances weight loss.\(^\text{52,53}\)

That said, juicing does result in a concentrate of vitamins, minerals, and phytochemicals (i.e., phytonutrients), which may be the real source of super powers associated with fruits and vegetables. It’s these phytonutrients, which give fruits and vegetables their vibrant colors, that act as potent antioxidants that scavenge free radicals and help manage oxidative stress.

For instance, you may have heard of resveratrol, which is a phytonutrient found in the skin of red and purple grapes, or maybe anthocyanins, which are the colorful antioxidants found in berries that give them their rich color. Perhaps you’ve heard of EGCG, which is a well-known phytonutrient found in green tea, beta-carotene, which gives carrots and sweet potatoes their bright orange hue, or lycopene, a powerful phytonutrient found in tomatoes.

The list goes on and on. In fact, various fruits and vegetables each contain a unique lineup of these phytonutrients, and it’s estimated that there may be over 4,000 different phytochemicals.
In addition to providing direct antioxidant protection and health-boosting effects, these bioactive phytonutrients are likely the driving factor behind the weight loss benefits of fruits and vegetables. That's right, these phytonutrients exert powerful fat-fighting super powers by improving carbohydrate tolerance, boosting fat burning, improving appetite control, and crushing cravings.

In one study published in the *Journal of Human Nutrition and Dietetics*, researchers from the University of Florida examined the relationship between phytonutrient intake on body weight in 54 young, healthy participants, who were divided into two groups: normal weight and overweight-obese. Despite the fact that the folks in both groups consumed about the same number of calories daily, the overweight-obese adults consumed fewer phytochemicals, providing evidence that phytonutrient intake is inversely associated with body weight and fat.

In a subsequent study published in the journal *Nutrition & Metabolism*, researchers tracked the eating habits of over 1900 study participants over the course of three years to determine if phytonutrient intake had an impact on weight management. Once again, they found that participants who consumed fewer phytonutrients gained more weight over the course of the study, leading the authors to conclude that higher phytonutrient intakes could have favorable effects on prevention of weight gain and reduction of body fat.54

In yet another study published in the *Journal of Human Nutrition and Dietetics*, researchers analyzed the dietary intake of over 2500 study participants, and they found that those folks who consumed the most phytonutrients had lower body weight and less belly fat.55

Indeed, juicing can be a healthy way to increase fruit and vegetable consumption and promote overall health and weight management, and one benefit is that most people will tend to include a wider variety of vegetables (and subsequently, a greater array of phytonutrients) with juices. With that being said, juicing is not a miracle cure, claims associated with juicing are largely unsubstantiated by research, and it does not make up for otherwise poor food choices and eating habits. Further, it's important to be wary of the makeup of fresh juices. Juices can be a concentrated source of calories and sugar, particularly those that contain multiple sources of fruit.
6. Turmeric Tonic

Turmeric (Curcuma longa L.) is the most popular spice in Indian cuisine and a major ingredient in curry powders. Turmeric has a long history of medicinal use, especially to promote a healthy inflammatory response. Curcumin, a potent antioxidant that gives turmeric its yellow pigment, has been the subject of nearly 3,000 scientific studies and is regarded as one of the best investigated botanical constituents in biomedical literature.56,57

While the health-promoting properties of turmeric—and more specifically, curcumin—are principally related to its powerful anti-inflammatory properties (i.e., ability to reduce several key biomarkers of inflammation, including pro-inflammatory cytokines, enzymes, and transcription factors), experimental evidence supports the activity of curcumin in promoting weight loss and reducing the occurrence of obesity-related health conditions.58

Inflammatory stress can also result from excess body fat. That’s right, body fat (i.e., adipose tissue) is much more than an innate depot for excess energy storage. It is a dynamic tissue that secretes a large number of hormones and chemicals (e.g., cytokines), many of which have a pro-inflammatory effect and favor an inflammatory environment.59–61 As a result, obesity is commonly recognized as a state of increased oxidative stress and inflammation.

Along these lines, recent research shows that curcumin directly inhibits a number of these pro-inflammatory compounds secreted by adipose tissue. What’s more, curcumin also induces the expression of the hormone adiponectin, which is a key anti-inflammatory, fat-burning hormone that is associated with enhanced insulin sensitivity. It’s through these unique mechanisms of action that “curcumin reduces obesity and curtails the adverse health effects of obesity.”58 In one recent randomized controlled trial, researchers from Italy found that when overweight participants combined a healthy diet and regular physical activity with curcumin supplementation they lost 12 times more body fat—including twice as much belly fat—compared to the placebo group.62
Supplementation with curcumin has been shown to substantially reduce levels of key pro-inflammatory biomarkers of biological aging (e.g., C-Reactive Protein, IL-1β, and IL-6), as well as reduce joint discomfort and improve physical function, feelings of wellbeing, and quality of life. What’s more, recent research demonstrates that when curcumin is combined with regular exercise and a balanced diet it leads to significantly greater improvements in strength, endurance, cardiovascular fitness, general fitness, fatigue resistance, and cumulatively (and very importantly) contributes to attenuating age-related losses in muscle mass compared to diet and exercise alone.

In short, curcumin supplementation has been shown to help people feel, live, and move better, healthier lives, and that’s precisely why we wanted to share a couple recipes that include this supernutrient from turmeric. This first recipe combines the power of turmeric with ginger, lemon, and honey, as well as coconut water, which is a good source of electrolytes and may support rehydration after exercise.

**Ingredients:**
- 2 cups coconut water
- 2-inch knob turmeric OR 1 tsp dried turmeric
- 1-inch fresh ginger root
- Juice of 1 lemon
- ¼ tsp salt
- 1 – 2 tbsp honey

**Directions:**
- Place coconut water, turmeric, and ginger root in a blender and blend well.
- When the turmeric and ginger are finely shredded, strain the liquid through a fine mesh sieve into a jar.
- Add lemon juice, salt, and honey to taste. Serve, preferably with food containing fat along with black pepper for enhanced absorption (of turmeric).
7. Lemon Ginger Tea with Turmeric

We’ve already taken time to extol the potential health benefits of water, turmeric, ginger, lemon, and honey, and here’s another tasty recipe that combines all of them into one “fat-burning” concoction.

**Ingredients:**
- 12 ounces of water
- 1 tsp fresh grated turmeric (or, ½ tsp turmeric powder)
- 1 tsp fresh grated ginger (or, ½ tsp ginger powder)
- Juice of ½ lemon
- Pinch black pepper
- 1 tbsp raw honey

**Directions:**
- Combine turmeric, ginger, and water in a saucepan.
- Turn the heat to medium-high and simmer for 5 – 10 minutes. Do not let mixture come to boil.
- Strain the hot liquid and pour into a cup or mug.
- Stir in the lemon juice and honey.
- Enjoy!

8. Coffee

Coffee is one of the world’s most consumed drinks, trailing only water and tea, although the latter is often debated. Despite its popularity, coffee seems to be a somewhat contentious beverage, as it is frequently considered “unhealthy.” However, there’s seemingly more research to suggest the opposite, as there are a multitude of health benefits associated with regular coffee consumption, and
amongst them is an increase in metabolic rate.

Research over the past several years suggests that coffee consumption may protect against type 2 diabetes, Parkinson’s disease, liver cancer, and liver cirrhosis. It’s important to point out that studies suggesting these benefits are observational in nature, which means that they don’t necessarily prove that coffee caused the effects. Here’s a sampling of some of the health benefits associated with regular coffee consumption:

- Research suggests that regular coffee consumption is associated with a substantially lower risk of type 2 diabetes.66
- Some studies have shown an inverse relationship between coffee consumption and Alzheimer’s disease, suggesting that coffee may have protective benefits against dementia.67 Recent reports estimate that moderate coffee consumption may lower the risk of Alzheimer’s by as much as 20%.68
- Studies have shown that coffee drinkers have a significantly lower risk of developing Parkinson’s disease.69
- Recent research on coffee and mortality performed by scientists from the Harvard School of Public Health found that people who regularly drank coffee had a lower risk of death from cardiovascular disease than those who rarely drank coffee.70

Often, people think of coffee just as a vehicle for caffeine, which we’ll discuss more in just a moment. But it’s actually a very complex beverage with hundreds and hundreds of different compounds in it. In fact, a cup of coffee contains all of the following essential nutrients:

- Pantothenic Acid (Vitamin B5)
- Riboflavin (Vitamin B2)
- Niacin (Vitamin B3)
- Thiamine (Vitamin B1)
- Potassium
- Manganese

Even more, coffee is loaded with antioxidants. In fact, studies show that coffee is the single greatest dietary source of antioxidants—outweighing even fruits and vegetables—amongst many cultures.71
Of course, coffee is synonymous with caffeine, and there may be a host of benefits—including metabolism-boosting advantages—associated with caffeine consumption. For instance, coffee consumption increases alertness and energy levels, and studies have shown that coffee consumption can improve performance on mental tasks.\textsuperscript{72,73}

In addition, studies have found that coffee can improve mood, feelings of well being, reaction times, vigilance, and cognitive function.\textsuperscript{74} Caffeine is also widely studied from a sports performance standpoint, and it has been shown to significantly improve physical performance and reduce perceived levels of exertion (i.e., makes tasks feel easier) when taken before exercise.\textsuperscript{75}

From a metabolism standpoint, studies show that coffee consumption significantly increases metabolic rate.\textsuperscript{76} In fact, consuming as little as 100mg of caffeine, which you can get from a single cup of coffee, is enough to boost metabolic rate, and it appears that repeated/greater doses lead to an even more pronounced effect.\textsuperscript{77} What’s particularly interesting is that this increase in resting metabolic rate is accompanied by greater oxidation of fat. Simply put, coffee and caffeine appear to boost metabolic rate and increase fat burning.

While there are many health and metabolism benefits associated with regular, moderate coffee consumption, it’s important to assess and consider your tolerance to caffeine. Individual differences in caffeine metabolism apply, and genetically, some folks are “slow” caffeine metabolizers, which makes them more sensitive to the stimulatory effects (e.g., jitters, feeling wired) of the compound. Lastly, it goes without saying that caffeine is not a sleep aid, and it is generally recommended to avoid caffeine consumption after 2pm, or at the latest, within 6 hours of bedtime.

9. Green Tea

According to researchers, \textit{Camellia sinensis}, which is the plant species whose leaves and buds are used in the production of tea, exerts several “anti-obesity effects.”\textsuperscript{78} Although various types of teas (e.g., oolong, black, green) all come from the \textit{Camellia}
*sinensis* plant, green tea leaves are processed (i.e., fermented) differently, which leaves them with a higher concentration of beneficial polyphenols called catechins. It’s these compounds, which also have noteworthy anti-inflammatory and antioxidant properties, that seem to have quite a potent effect on the metabolism and fat burning, and what’s more, they may also suppress appetite and decrease the absorption of calories.\textsuperscript{79,80}

Studies consistently show that green tea extract (standardized for the catechin epigallocatechin gallate, EGCG) increases the body’s use of fat for fuel, and these effects are independent of caffeine/stimulants. It does so by inhibiting enzymes that can shut down important fat-burning hormones (i.e., norepinephrine), thereby stoking the body’s fat-burning furnace.\textsuperscript{81}

In one study measuring 24-hour calorie expenditure and fat burning, healthy men supplementing with a green tea extract providing 90mg EGCG three times daily experienced a 4% increase in metabolic rate and 3.4% decrease in respiratory exchange ratio (RER), which signifies that they were burning more fat to meet the increased demand in calories.\textsuperscript{82} The participants taking the green tea extract were even burning more fat during sleep, and overall, over 41% of their daily calories burned came from fat—31% more fat burned than the placebo group.

In another study, participants taking a green tea extract daily (providing 400mg of EGCG) for 4 weeks showed a 25% increase in fat burning, and what’s more, they lost over 1.5% body fat during the one-month trial.\textsuperscript{83} In a 12-week study, participants taking a green tea extract (providing 270mg of EGCG daily) experienced a 3.3% increase in metabolic rate, a 4.6% decrease in body weight, and a 4.5% reduction in waist circumference.\textsuperscript{84}

In yet another study, participants taking a green tea extract standardized for EGCG combined with a modest reduced-calorie diet lost over twice as much weight as the placebo group after just 8 weeks. The participants taking the green tea extract also experienced a 2-fold greater increase in metabolic rate compared to the placebo group.\textsuperscript{85} In other words, green tea can help make a good fat loss program even more effective.

In addition to increasing metabolism, calorie expenditure, and fat burning, researchers also suggest that green tea extract can help control energy balance by suppressing
appetite. In rats, researchers from the University of Chicago found that injections of EGCG significantly reduced food intake and body weight. In a human study published in the *International Journal of Obesity*, participants consumed 8% fewer calories at a meal 4 hours after taking a standardized green tea extract when compared to the placebo group. Not only did the folks taking the green tea extract eat less, they also experienced a significant increase in metabolic rate, an effect that was maintained over the course of the 8-week trial and was accompanied by a significant reduction in body fat.

Researchers suggest consumption of 2 – 4 cups (i.e., 500mL – 1L) of green tea per day to reap these fat-burning and health promoting benefits.

In addition to green tea, there are a number of other types of tea that may promote weight loss, including Yerba Mate, Oolong tea, Rooibos tea, Honeybush tea, White tea, and Purple tea. Another type of tea that may boost fat loss is Puer tea (also Pu’er or Pu-erh tea), which is type of fermented tea that originated in Yunnan Province in China and has been shown to enhance weight loss, decrease belly fat, and improve blood lipids (e.g., cholesterol).  

10. Red Wine

Over the last several years, the health benefits of moderate red wine consumption have become increasingly clear. Like many of the other dark, rich-colored fruits, red wine (i.e., grapes) is a rich source of antioxidant polyphenols (e.g., anthocyanins).

One of the best-known polyphenols found in red wine is resveratrol. A number of studies have demonstrated the anti-inflammatory activity of resveratrol and its ability to promote a healthy inflammatory response. Like oleocanthal (found in EVOO) and a number of other polyphenols, resveratrol seems to exhibit its anti-inflammatory activity mostly through inhibition of the COX enzymes, which has the potential to promote a healthy inflammatory response. Resveratrol also seems to modulate the body’s inflammatory response by reducing both the production of inflammatory molecules as well as the formation of free radicals.
Another means by which resveratrol may exert its health benefits is by mitigating the effects of advanced glycation end-products, which can be consumed exogenously (i.e., food) or produced endogenously.\textsuperscript{94,95} AGEs play a role in accelerating the aging process.\textsuperscript{96}

Resveratrol has also been purported to prevent obesity, and a number of studies have demonstrated the anti-obesity super powers of this polyphenol. For instance, research has shown that resveratrol decreases the synthesis of fat and reduces the uptake of fat by the body’s fat cells. In addition, resveratrol increases the body’s ability to burn fat for fuel (in the muscles and liver).\textsuperscript{97}

Interestingly, resveratrol has been shown to “brown” white adipose tissue (i.e., body fat), and along these lines, it also seems to increase metabolic rate and calorie expenditure via activation of brown adipose tissue (BAT) thermogenesis. Simply put, BAT is unique in that it burns body fat to produce heat (i.e., thermogenesis), and as a result, BAT thermogenesis is currently being investigated as an anti-obesity target.\textsuperscript{49,50}

While resveratrol seems to be the most popular antioxidant associated with red wine, the beneficial effects of red wine cannot be solely accounted for by this polyphenol due to its low concentration and bioavailability.\textsuperscript{98} In a recent study published in the journal \textit{PLoS One}, researchers from Hungary demonstrated that malvidin, the most abundant anthocyanin polyphenol in red wine, possesses potent antioxidant and anti-inflammatory activity, and the effects of malvidin “at least partially account for the positive effects of moderate red wine consumption.”\textsuperscript{99}

This is important to note because it highlights that a combination of red wine polyphenols—not a single compound—may be needed to derive the touted health benefits. Thus, moderate amounts of red wine—1 glass (i.e., 5 ounces) per day for women and 1 – 2 glasses per day for men—may be optimal. It’s important to note, however, that drinking alcohol in excess appears to increase the body’s production of pro-inflammatory molecules, according to researchers from the University of North Carolina.\textsuperscript{100}
11. Kefir

While not as popular as yogurt and cheese, kefir is a complex fermented dairy product created through the fermentation of milk by a large, diverse community of lactic acid bacteria and yeasts (i.e., kefir grain), and it has been consumed and associated with health benefits for hundreds of years, beginning with communities in the Balkans, in Eastern Europe, and in the Caucasus. Kefir (pronounced either as KEE-fur or kuh-FEER) is traditionally made with cow’s milk, but it can also be made with milk from goats, sheep, buffalo, or soy milk.

Unlike other fermented foods, which may contain a handful of different strains of probiotics, kefir is a dramatically more robust source of probiotics. In fact, kefir may contain DOZENS of different strains of probiotics, including various species from the \textit{Lactobacillus}, \textit{Lactococcus}, \textit{Streptococcus}, \textit{Leuconostoc}, \textit{Oenococcus}, \textit{Acetobacter}, and \textit{Bifidobacterium} families as well as various healthy yeast and fungal species.\textsuperscript{101} Research on kefir has shown that it can promote immunity, improve cholesterol metabolism, alleviate allergies, and facilitate wound healing, and it also has powerful antimicrobial (e.g., antibacterial, antifungal, antiviral) properties.

Not surprisingly given its robust probiotic makeup, kefir has been shown to preferentially modify the composition of the gut microbiota. For instance, multiple studies have shown that kefir increases the amount of beneficial microbes (e.g., \textit{Lactobacillus}, \textit{Bifidobacterium}) in the gut while simultaneously decreasing harmful microbial species (e.g., \textit{Clostridium perfringens}, \textit{Salmonella}, \textit{Helicobacter}, \textit{Staphylococcus}, \textit{E. coli}, \textit{Listeria}). In addition to regulating microbial composition, kefir can also favorably alter the activity of the microbiota (e.g., enhancing immune and inflammatory response).\textsuperscript{101}

Kefir’s ability to preferentially modulate the gut microbiota is critical because a healthy gut flora—which involves optimizing the balance of “good” to “bad” bacteria—is critical to digestive system health and function, overall health, immune system function, mental health and wellbeing, metabolism and weight management, respiratory (i.e., lungs) and integumentary (i.e., skin) systems, and more.
When the gut flora is in a healthy balance (often called probiosis), it provides immense support to digestive system and immune system function, metabolism, skin health, mood, and more. For instance, you may have heard of the gut being called the “second brain”; you see, the gut houses its own entire nervous system called the enteric nervous system (ENS), which communicates directly to the brain, and vice versa. This intimate connection is termed the “gut-brain axis,” which influences satiety, food intake, regulation of glucose and fat metabolism, insulin secretion and sensitivity, bone metabolism, and more.102

However, when the gut is unbalanced and unhealthy (often called dysbiosis), a number of issues can ensue. Dysbiosis describes the state of an unhealthy imbalance of bacteria in the gut flora, characterized by excessive levels of pathogenic (i.e., “bad”) bacteria, inadequate amounts of commensal (i.e., “healthy”) and probiotic bacteria, and/or reduced bacterial diversity. Fundamentally, gut dysbiosis destroys the mutually beneficial relationship between humans and microbes (often called symbiosis).

In fact, research suggests that gut dysbiosis has been linked to countless different human health issues, including digestive-, skin-, metabolic-, and mental wellbeing-related issues. Even more, gut dysbiosis is connected to obesity, weight gain, and difficulty with weight management.103–108 For example, gut dysbiosis can increase the number of calories you absorb from food.106

Speaking of which, in a recent randomized controlled trial published in the European Journal of Nutrition, researchers from Iran set out to assess whether there were any weight loss benefits associated with kefir consumption when combined with a non-energy-restricted diet in overweight and obese women. All of the women followed the same diet, and it’s important to reiterate that this was not a calorie-restricted diet. After 8 weeks, the women who added kefir to their nutrition plan lost significantly more weight and inches (from their waistlines) compared to the control group, who followed the same diet without kefir.109

Nowadays, there are a number of companies that specialize in the development in this functional food, and more than likely, you can find any number of them at your local grocery or health food store (in the refrigerated dairy section). You can also make your own kefir at home; all you’ll need is some kefir grains (which can be purchased online
and at select health food stores), whole milk (or dairy of choice), a glass jar, a coffee filter (or tight weave cloth), and a strainer.

12. Protein Shakes & Smoothies

When it comes to improving overall health, performance, body composition, appetite control, and satiety, there is arguably not a single more effective, well-established dietary factor than optimizing one’s protein intake. Research has shown that consuming diets higher in protein are not only safe for otherwise healthy individuals, they may provide a host of benefits. Higher protein diets may:

- Accelerate fat loss and spare lean body mass while following a reduced-calorie diet.
- Attenuate weight regain and contribute to long-term weight maintenance.
- Optimize 24-hour muscle protein synthesis and facilitate the maintenance or building of muscle mass.
- Boost metabolic rate.
- Preserve metabolic rate after weight loss.
- Increase satiety and improve appetite control.
- Improve carbohydrate metabolism and glycemic regulation.
- Increase calcium absorption.

One way by which high-protein diets may improve weight-loss outcomes is through increased satiety and improved appetite control. High-protein meals boost satiety, which means that protein-dense foods are much more likely to make you feel full and satisfied. What’s more, diets rich in high-quality proteins improve appetite control, as well as reduce daily food intake. In a recent study published in the Nutrition Journal, researchers from the University of Missouri found that consuming higher protein, dairy-based snacks (e.g., yogurt) improved satiety, appetite control, and limited subsequent food intake when compared to higher fat and higher carbohydrate-based snacks.

All foods that you eat require calories to be burned in order to digest, absorb, and assimilate their nutrients. This is referred to as the Thermic Effect of Feeding (TEF), or
what we like to call *The Thermogenic Burn*. 

There is a general consensus in the scientific literature that protein stimulates dietary-induced thermogenesis to a greater extent than other macronutrients (e.g., carbohydrates, fat). In fact, protein-rich foods are estimated to boost metabolic rate by as much as 30%, whereas as fats and carbohydrates are typically estimated to be in the 5 – 10% range.

In other words, **protein-rich foods have the greatest thermogenic burn of all, boosting the metabolism THREE to SIX TIMES more than carbs or fats.** This means that you burn more calories each day when you consume a high-protein diet, and it also means that protein-rich foods provide less metabolizable energy (than carbs or fats)—meaning your body is less likely to store calories from protein as fat.

One of the easiest, most convenient, most versatile (and most delicious) ways to add more protein to your diet is by using a protein supplement. Specifically, milk-based protein supplements (e.g., whey, casein) are generally considered to be superior due to their protein quality and amino acid profile (e.g., leucine), and they are frequently used in studies to establish key baselines (e.g., muscle protein synthesis).

Complete milk proteins from dairy is composed of 20% whey protein, which is rapidly digesting, and 80% micellar casein, which is digested much more slowly. While whey is commonly regarded as the “gold standard” of protein (and for good reason), research suggests that a “time-released” combination (e.g., whey, casein, and/or milk concentrate) may be superior for appetite control (i.e., satiety), body composition, performance, and recovery. A great example is BioTrust Low Carb, which contains whey, milk, and casein proteins.

In a recent study conducted by Dr. Daniela Jakubowicz, professor of medicine at Tel Aviv University, and colleagues, study participants who consumed a **protein shake containing 49 grams of high-quality protein** (just like that in BioTrust Low Carb) first thing in the morning lost 145% more weight than a group consuming a normal amount of protein at breakfast—despite consuming the exact same number of calories! Only group consuming the protein shake at breakfast experienced **significant reductions in the hunger hormone ghrelin.**
This last part is important to note. Ghrelin stimulates the appetite, promotes food intake, and may facilitate weight gain.\textsuperscript{119} Previous studies have shown the greatest (and most sustained) reductions in ghrelin after eating protein-rich meals (compared to carbohydrates and fats).\textsuperscript{120,121} Additional studies have shown that supplementation with protein shakes (just like BioTrust Low Carb) leads to weight loss, reductions in ghrelin and appetite, and improvements in other appetite-related hormones (e.g., GLP-1, which suppresses appetite).\textsuperscript{122–124}

Here’s a delicious protein smoothie recipe for you to try.

\textbf{Milk Chocolate Coconut Delight}

\textbf{Ingredients:}

- 2 – 3 scoops BioTrust Low Carb Milk Chocolate
- 1 cup unsweetened chocolate almond milk
- 1 tbsp coconut oil
- 1 – 2 handfuls spinach
- 1 tsp almond extract
- Stevia, to taste (optional)
- 5 ice cubes

\textbf{Directions:} Put all ingredients in a blender and enjoy!

\textbf{Drink Your Way Trim}

It bears repeating that the best “fat-burning” beverage is clean, unfiltered water, and for the most part, the majority of benefits associated with the drinks detailed above are likely to be derived from proper hydration and positive dietary displacement (i.e., adding more water and/or replacing sugar-sweetened beverages).

All of these drinks can be included as a part of an overall healthy weight-loss program, but by themselves they will not make up for poor food or lifestyle choices. What’s more, we recommend extreme caution when faced with the latest detox, cleanse, or diet fad, particularly those that are centered around severe caloric restriction for prolonged
periods of time, complete elimination of certain food groups, etc. These types of programs do very little to reinforce healthy eating habits, promote sustained weight loss, or support overall health. In fact, most will do the exact opposite.
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