



Wellbeing

Insights

Living a Better, More Vibrant Life



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Digesting the Keto Diet

A Closer Look at the High-Fat Hype

The keto (short for ketogenic) diet has taken social media by storm, and there is no shortage of people and companies eager to get a piece of the latest low-carb pie whether they know what they're talking about or not. With the term being tied to some pretty outrageous health claims, it's worth taking a closer look.

The very low-carbohydrate, high-fat diet is said to turn the body into a fat-burning machine, but is it really as simple as ditching carbs and loading up on fat?

What is ketosis?

The state in which the brain and body rely upon ketone bodies rather than glucose for fuel is referred to as ketosis. The goal of the diet is to maintain a state of ketosis by severely limiting carbohydrate intake to the point that glucose supply is inadequate to fuel the body's energy needs. So, how do you achieve ketosis?

Your brain and body are fueled primarily by glucose, which is

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Digesting the Keto Diet

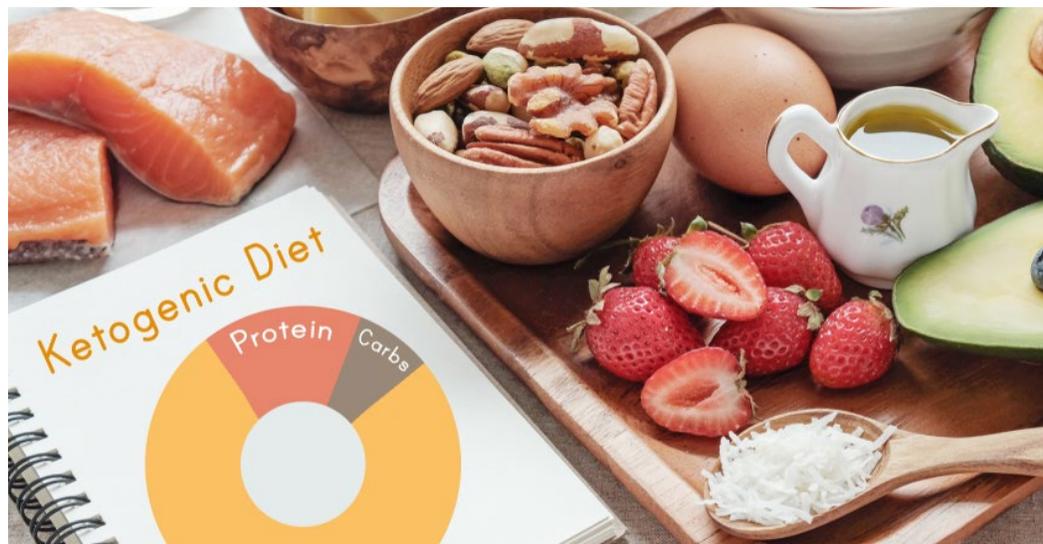
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largely supplied by carbohydrates. When energy intake exceeds energy expenditure, excess glucose is converted to fatty acids to be stored as body fat.

Some glucose is also stored as glycogen, which is accessed when food sources are inadequate, for example, when you sleep or fast. However, after about 48 hours without food, glycogen stores are exhausted and the body begins to break down muscle proteins, converting them to glucose. In order to conserve proteins essential to survival, such as antibodies, enzymes and hemoglobin, metabolism shifts from glucose-burning to fat. In a process known as ketogenesis, fat stores are converted to ketone bodies, which can directly fuel the brain, heart, and skeletal-muscle and central nervous systems. As long as ketone bodies are maintained at a high concentration (aka ketosis), the body can survive without glucose.

Cornerstones of a Keto Diet

Ketosis is difficult to achieve and maintain. Carbohydrate intake must be less than about 50 grams per day. In order for the body to enter full ketosis, a two to three day fast is usually required first, followed by strict adherence to a keto diet at a ratio that varies by individual. Compared to the typical American diet, which includes 50 to 60% of caloric intake as carbohydrates (grains, sugars, fruits and vegetables), 20 to 30% protein and 10 to 20% fat, keto generally requires a 2:1 to 4:1 ratio of dietary fat grams to grams of carbohydrates and protein combined.



The biochemistry of fat digestion/ ketogenesis is extremely complex, involving multiple steps and multiple organs. Each step is affected by diet, the body's overall nutritional status, and genetic and physical attributes, which can all affect the efficiency of the process, making adherence to a truly ketogenic diet much more complicated than is recognized.

Keto Diets throughout History

The first therapeutic uses of the keto diet began in the 1920s as a successful treatment for epilepsy. As early as Biblical times, it was common practice to "starve a seizure," as prolonged fasting was known to reduce seizure activity. Because this diet forces the body to mimic starvation and allow fats to fuel the brain, it is extremely successful in seizure treatment, particularly in children. In fact, in many cases the diet alone is more effective than prescription drugs.

Today, the effects of keto diets are being studied in a wide range of clinical conditions and show therapeutic promise for patients with Alzheimer's and Parkinson's diseases, as well as certain neurological conditions. Research suggests that a keto diet may result in greater weight loss when compared to a calorie-counting diet.

The Verdict

A ketogenic diet is a therapeutic solution for many people with chronic diseases. For people without pre-existing health conditions who want to boost health or lose weight, following a more moderate keto, low-glycemic-index diet that includes intermittent fasting can be of benefit for several reasons:

- Eating a diet rich in non-starchy vegetables and including fruits of lower carbohydrate per volume, like berries, while avoiding simple carbohydrates such as sugar, white flours, rice, etc. will deliver necessary nutrients while keeping blood glucose and insulin levels low.
- Including plenty of healthy fats like avocado, fatty fish, nuts, seeds and olive oil will also provide essential fatty acids necessary for healthy cell membranes, brain health and more.
- Adequate intake of proteins delivers amino acids, the building blocks of hormones, cells and even DNA.

When considering any diet, it's important that you understand how it's supposed to affect your body to determine if it's right for you.

On the Menu

Kefir

Kefir, the latest craze in the dairy aisle, gets its name from the Turkish word keyif, which means feeling good. It's a yogurt-like, fermented food made either from milk or water. Dating back to biblical times, there are various myths surrounding kefir, including that its grains were mentioned in the Old Testament, as well as tales about the prophet Muhammad who brought them to the mountain tribes.

It is believed that kefir started when sheep herders accidentally fermented milk in their leather flasks. This mixture soon spread around the tribes and was then picked up by Russian doctors. Later, in the 19th century, it was used to treat tuberculosis. It is highly consumed in Eastern European countries and now starting to gain momentum in the U.S. with \$2 billion in sales in 2016 and growing each year.

Milk kefir can be made with cow, sheep, goat or coconut milk, while water kefir is made from sugary water or coconut water. The flavor of kefir can vary greatly, depending on the source and the brand. Milk kefir is tart, so flavors such as raw honey, pure maple syrup, vanilla extract or organic stevia are usually added to boost its appeal. You can even add fresh or pureed fruit like bananas or blueberries. Coconut kefir has a little bit sweeter taste and becomes carbonated after fermentation. Water kefir has a more subtle taste and can be used as a healthy alternative to drinking soda or processed fruit juice.

Kefir is considered a probiotic food as it contains live organisms that support gut health. It also contains high levels of vitamin B12, calcium, magnesium, vitamin K2, biotin and folate. Here are some other benefits:

- Boosts immunity
- Builds bone strength
- Supports digestion
- Improves allergies
- Heals skin
- Improves lactose intolerance symptoms

When compared to yogurt, kefir takes the trophy for nutritional edge, containing anywhere from 10 to 34 types of probiotics compared to 2 to 7 in yogurt. It is also more aggressive in nature by attacking pathogens and bad bacteria along with colonizing in your gut. Yogurt, on the other hand, contains more transient bacteria, meaning that they go in to help clean up your gut but don't stay very long.

Keep It Fresh

Kefir will last two to three weeks with refrigeration. Mind the ingredient list to avoid added and/or processed sugars and artificial flavors. You can also buy starter grains online to make your own if you are feeling ambitious.

Kefir Berry Smoothie

Ingredients:

- 1½ cups frozen mixed berries
- 1 cup plain kefir
- ½ medium banana
- 2 tsp almond butter
- ½ tsp vanilla extract

Directions:

Add to blender and blend until smooth.

Nutrition Info

Per 2-Cup Serving

Calories	304
Carbohydrates	24g
	Sugar 37g
	Fiber 9g
Protein	15g
Sodium	25mg



College Expense Planning: Summertime Guide



College can be one of the most challenging financial planning activities that many families face. The sobering reality is that college is expensive, very expensive, and if you do not prepare for those financial obstacles, it can leave families and young adults with a crushing amount of debt. Here are some tips to help you plan for the inevitable and set your children up for immediate financial success after graduation.

1. Establish a 529 College Savings Account. This should be done as soon as your children are born. A 529 account allows families to set aside money for college savings (after tax, but many states allow deductions from state income). The primary advantage of the accounts is that distributions, including investment earnings, are tax free as long as they are used for Qualified Education Expenses. Any family member can contribute to it, not just the parents. You may want to ask your family members to make contributions in lieu of typical gifts for birthdays, holidays and accomplishments.

2. Create a college expense budget. Many families plan for the estimated cost of tuition, but don't

forget to plan for living expenses, books and other college fees. These can also be quite expensive and need to be factored into the savings strategy.

3. Have your children start exploring scholarships as soon as they are eligible. Apply for as many as you possibly can as early as you can. The more "free" money you are able to acquire through scholarships, the lighter the financial burden will be.

4. Know your financial aid options inside and out. There are so many different types of loans available to students and parents. Make sure you have a good understanding of these options, including the interest rates, loan terms and repayment options. This will help subsidize any expenses you cannot save for ahead of time.

Mindful Minute

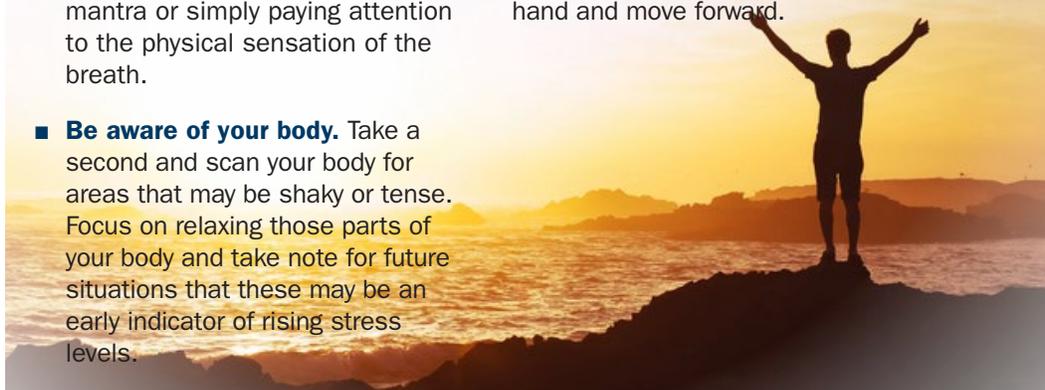
Do you ever find your temper heating up along with the sizzling summer sun? While it's always important to be cognizant of our physical needs as temperatures spike, it's also good to be mindful of how to keep cool mentally. **If you feel your blood is about to boil, remember these simple mental "chill pills."**

■ **Breathe.** Start by taking the biggest, deepest breath you've taken all day and then empty it out completely, letting go of any stale air (and energy) you may be holding onto. Follow that up with 3 to 5 more cycles of slow, controlled breaths, focusing on a calming mantra or simply paying attention to the physical sensation of the breath.

■ **Be aware of your body.** Take a second and scan your body for areas that may be shaky or tense. Focus on relaxing those parts of your body and take note for future situations that these may be an early indicator of rising stress levels.

■ **Own the emotion.** Although a person or circumstance may be getting all the blame for your hot mindset, the power to change your reaction lies with you alone. Don't rely on anyone or anything else to take your anger (frustration, hurt, etc.) away. While circumstances are created by many forces, the emotion you tie to it is yours. Choose to work through it and shift your mindset for the sake of your own happiness.

By practicing these techniques when stressful situations arise, you will avoid rash reactions and make better judgements to address the situation at hand and move forward.





Cupping Therapy

A Brief Look at the Popular Treatment

Cupping therapy is an ancient form of alternative medicine that places cups on the skin and uses suction (i.e., negative pressure) to produce any number of health benefits. Cupping therapy received a surge of mainstream exposure during the 2016 summer Olympics when Michael Phelps and other members of the Olympic team began showing up to events with small, round bruise-like markings on their skin. Since then, there has been quite a bit of buzz about cupping and its effectiveness.

What's cupping all about?

Cupping therapy has been used to address a myriad of health concerns, primarily involving pain, inflammation and blood flow. This includes everything from eczema, acne and herpes zoster to chest congestion, sore or tight muscles, arthritis, depression, headaches and varicose veins, just to name a few.

The basic idea is to place glass, silicone or plastic cups on the skin to create a vacuum. This is done by heating up the cups and allowing them to cool on the skin. More modern techniques often involve a simple valve system whereby a tool is used to pull out air with the squeeze of a trigger. During a typical cupping session, three to 10 cups are placed on the body, most commonly on the back, and left for three to 20 minutes. Cups may remain in one spot, or the practitioner may move them around. Patients may experience a sensation of tightness, pulling, slight burning, throbbing or stretching, although they should not experience any intense pain.

The primary side effect is skin discoloration at the site of cup application, which lasts anywhere from a few days to two weeks. These spots may look a bit odd or even

shocking but are not painful like a typical bruise. Cupping is often used in conjunction with other treatments such as massage or acupuncture.

Increasing blood flow to the affected areas is said to be the primary mechanism by which cupping produces a healing effect. The many byproducts of this increased blood flow (increased oxygenation, stretching of connective tissue, influencing inflammatory processes and blood vessels, changes in energy flow through meridians, etc.) are all proposed modalities for the effects of cupping. However, there is little scientific evidence to support its efficacy.

The Evidence

While there have been hundreds of studies involving cupping, it's difficult to find any with definitive results to confirm or refute the benefits of cupping while maintaining high methodological standards. The gold standard in scientific research are randomized control trials (RCTs) where subjects are randomly assigned to receive treatment, placebo or no treatment and neither the researcher nor the subject is aware of which group the subject is assigned to. It's quite challenging to produce a placebo for cupping (either cups are applied or they are not), particularly while keeping both the researcher and the subject blind to whether or not the placebo is being administered.

For this reason, even in rigorous meta-analysis where strict study inclusion criteria are followed, many are still reported as being at high risk for bias. That being said, a 2015 systematic review of cupping concluded that "Cupping therapy may be beneficial for pain-related conditions (herpes zoster, low back pain), acne and facial paralysis." Further, a 2012 systematic review concluded "cupping therapy appears to be effective for various diseases/conditions, in particular herpes zoster, acne, facial paralysis and cervical spondylosis." However, both analyses noted in their conclusions that further well-designed trials were needed to support these conclusions.

Essentially, the jury is still out on whether cupping therapy is truly an effective treatment (and if so, for which conditions) or if its advocates are primarily subject to the placebo effect. If you are interested in trying it out, speak with your health care practitioner and do your research on its effects specific to the condition you're trying to treat.

Cao, H., Han M., & Zhu X. (2015). An overview of systematic reviews of clinical evidence for cupping therapy. *Journal of Traditional Chinese Medical Sciences* 2, 3-10.

Cao, H., Li, X., & Liu, J. (2012). An Updated Review of the Efficacy of Cupping Therapy. *PLoS ONE*, 7(2), e31793. <http://doi.org/10.1371/journal.pone.0031793>

Psoriasis At-A-Glance

What is psoriasis?

Psoriasis is a skin condition related to the immune system that expedites the creation of skin cells, causing a buildup of excess cells on the surface of the skin. Approximately 2% of the American population has some form of psoriasis.

There are several types of psoriasis. The most common is plaque psoriasis, affecting 80 to 90% of those diagnosed with the condition. Raised red patches of skin covered in thick scaly buildup, most commonly occurring on the knees, elbows, lower back and scalp, are referred to as plaques and are the primary characteristic of plaque psoriasis. Plaques vary in size, location and severity but often cause itching and pain.

The second most common type is guttate psoriasis, affecting 10% of those with the condition. Most often affecting children and young adults, this form appears as small dot-like lesions and is typically triggered by

an infection such as strep throat. Guttate psoriasis is the only form that, for some, never returns after the initial flare-up. For all other forms, psoriasis is a lifelong condition.

Approximately 30% of those with psoriasis will develop psoriatic arthritis (although it is possible to have only psoriatic arthritis in the absence of skin plaques). This form causes swollen, painful joints and can occur in any joint. Other less common forms of psoriasis include nail, inverse, pustular and erythrodermic psoriasis.

What causes psoriasis?

While the exact process is not fully understood, it is thought that psoriasis is related to a malfunctioning of T cells and other blood cells that are one of your body's defenses against foreign substances, viruses and bacteria. For those with psoriasis, T cells attack healthy skin cells by mistakenly setting off a series of events that leads to the overproduction of new skin cells, redness from blood vessel dilation and other symptoms of psoriasis.

Researchers believe that both genetics and environment can contribute to the development of psoriasis. Factors that may trigger a flare-up include infections and skin injury, as well as smoking, heavy drinking, weather and stress. Certain medications and vitamin deficiencies may also contribute, along with family history. Psoriasis is not contagious. Men and women develop psoriasis at equal rates. It affects all races but is slightly more common among Caucasians. It can develop at any age but is most common between the ages of 15 and 35.

How do you manage psoriasis?

Management is largely dependent on the type of psoriasis, frequency and intensity of flare-ups, and individual triggers. Consult with a physician (ideally a dermatologist) to determine the best treatment path. This often includes topical medication, light therapy, and identifying and avoiding triggers. In more severe cases there are other types of medication that may be used.

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“
Anger is an acid that can do more harm
to the vessel in which it is stored than
to anything on which it is poured.
”

- MARK TWAIN