

# PALEOLITHIC DIET IS THE BEST BET FOR DIABETES



KID-FRIENDLY  
PALEO  
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ANTIOXIDANT  
SUPPLEMENTS:  
GOOD OR BAD

LOREN CORDAIN, PH.D.



## PALEOLITHIC DIET IS THE BEST BET FOR DIABETES & OTHER DISEASES

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A newly published study in Cardiovascular Diabetology compared the effects of a Paleolithic diet to the current guidelines for a diabetes diet, and looked at cardiovascular risk factors for type 2 diabetes patients. The participating three women and ten men, who had type 2 diabetes that was not treated with insulin, were instructed to follow each diet for three-months.

The Paleolithic diet used was lower in cereals and dairy products, and higher in fruits, vegetables, meat and eggs. It was also higher in unsaturated fatty acids, dietary cholesterol and several vitamins. It was lower in total energy, energy density, carbohydrate, dietary glycemic load (GL) and glycemic index (GI), saturated fatty acids and calcium.

### PALEOLITHIC DIET COMPARED TO DIABETES DIET

The study concluded that a Paleolithic diet improved glycemic control and several cardiovascular risk factors as compared to a diabetes diet. The Paleolithic diet produced lower A1c, triglycerides, and diastolic blood pressure. An A1c test (also known as glycated hemoglobin or HbA1c) gives you a picture of your average blood glucose control for the past 2 to 3 months.

Triglycerides are a type of fat found in your blood. Excess triglycerides in plasma are linked to coronary artery disease in some people. Elevated triglycerides may be a result of untreated diabetes mellitus or

another disease.

Diastolic blood pressure measures the pressure in your blood vessels between heartbeats when your heart is resting, and it's the bottom number in a blood pressure reading. Below 60 is considered low, and higher than 90 is considered high.

The Paleolithic diet also produced lower weight, body mass index (BMI), waist circumference and higher high-density lipoprotein (HDL) cholesterol.

Good HDL cholesterol seems to scour the walls of blood vessels, and cleans out excess cholesterol. The authors of this study also compared the effects of a Paleolithic diet to those of several other diets.

### PALEOLITHIC DIET COMPARED TO MEDITERRANEAN-LIKE DIETS

This 12-week randomized controlled study involved 29 men with ischemic heart disease and impaired glucose tolerance or type 2 diabetes. The study concluded that a Paleolithic diet improved glucose tolerance independent weight-loss when compared to a Mediterranean-like diet.<sup>1</sup>

Impaired glucose tolerance is considered to be a pre-diabetic state of dysglycemia that is associated with insulin resistance, and increased risk of cardiovascular pathology.

### PALEOLITHIC DIET STUDIES WITH OVERWEIGHT INDIVIDUALS

In a non-controlled study with nine overweight people who were otherwise healthy, intervention food was supplied and weight was kept steady. Researchers concluded that a Paleolithic diet consumed for just ten days improved diastolic blood pressure, glucose tolerance, insulin sensitivity and lipid profiles.<sup>2</sup>

Insulin sensitivity is one measure of the risk for heart disease. In general, the more sensitive one is, the lower the risk for heart problems.

Lipid profiles include tests that are often ordered together to determine the risk of coronary heart disease. These tests that have been shown to be good indicators of the risk for heart attack or stroke caused by blockage of blood vessels or hardening of the arteries, also known as atherosclerosis. Lipid profiles typically include total cholesterol, high density lipoprotein cholesterol (HDL-C)—good cholesterol, low density lipoprotein cholesterol (LDL-C)—bad cholesterol, and triglycerides.

A second non-controlled study of 14 healthy people found that three weeks on a Paleolithic diet significantly reduced weight, BMI, waist circumference, systolic blood pressure, and the plasminogen activator inhibitor-1 (PAI-1).<sup>3</sup>

Systolic blood pressure is the top number in a blood pressure reading, and it represents the maximum pressure exerted when the heart contracts.

PAI-1 is mainly produced by the cells lining the blood vessels, but is also secreted by other tissue types. PAI-1 is inhibitor of the physiological process that degrades blood clots. Elevated PAI-1 concentrations are associated with cardiovascular disease.

## HUNTER-GATHERER DIET STUDIES WITH AUSTRALIAN ABORIGINES

One non-controlled study involved ten Australian Aborigines with diabetes, and a mean BMI of 27

kg/m.<sup>2</sup> Researchers concluded that reverting to a hunter-gatherer lifestyle for just seven weeks led to a 10% weight loss, and reductions in fasting and 2-hour glucose and fasting insulin levels.<sup>4</sup>

The same authors also conducted a second study with healthy Australian Aborigines. In this latter study, they found the insulin response to 70 g of starch from white bread was reduced, while the glucose response was not, following a reversion to a traditional lifestyle for 10- to 12-weeks.<sup>5</sup>

## EPIDEMIOLOGICAL STUDY WITH PACIFIC ISLANDERS

This study looked at traditional Pacific Island inhabitants of Kitava, Papua New Guinea. These people, who practiced a hunter-gatherer lifestyle, had no signs of ischemic heart disease, stroke or markers of metabolic syndrome, which may result from their traditional lifestyle.<sup>6-8</sup>

Metabolic syndrome refers to a group of symptoms that occur together, and promote the development of coronary artery disease, stroke, and type 2 diabetes.

## COMPARISON OF FINDINGS

The researchers concluded that all the improvements in markers of the metabolic syndrome on a Paleolithic diet are in line with findings from epidemiological studies in non-Western populations.<sup>6-8</sup>

Improvements in A1c1, weight,<sup>1,4,9</sup> BMI,<sup>9</sup> waist circumference,<sup>1,9</sup> diastolic blood pressure,<sup>2</sup> and triglycerides<sup>2</sup> on a Paleolithic diet have been observed in intervention studies.

A lower reported energy intake and energy density of food, despite food intake ad libitum, also agrees with earlier findings that a Paleolithic diet facilitates reduced caloric intake.<sup>1,10,11</sup>

*For sources see References: Section I*

## KID-FRIENDLY PALEO LUNCHES

*Nell Stephenson, BS USC EXSC*

Have you and your family been enjoying all the virtues of Paleo eating at home, but felt particularly challenged as to how your kids can keep up their great nutrition at school?



Not only are many school lunches unhealthy (and not Paleo), but oftentimes the time allocated to lunch for children is not sufficient to eat, chew and digest properly. As a result, some kids may end up eating too much too quickly, or possibly just skipping it all together!

Just as we adults need to prepare and pack lunches, snacks and meals in advance, so, too, do we need to do this for our kids.

Following these guidelines will help to ensure your little ones are adequately nourished even when out of your loving and watchful sight!

\*Make sure they have suitable lunchboxes. These should be insulated in order to keep items properly chilled with the help of a re-freezable ice pack or two.

\*If time is an issue in your child's schedule, opt for softer foods that literally don't take as much time to chew! This could be steamed veggies drizzled with olive oil, and soft, sliced fruit, such as peaches, pears, nectarines, oranges, grapes and so on. Diced turkey breast mixed with mashed avocado or hard-boiled eggs (if you're kids are not following an autoimmune

plan) chopped up with flax oil and a handful of raw walnuts are another suggestion.

Just as when you're planning your own meals, keep in mind the balance of macronutrient ratio. Each meal should have some protein, some fat and some unprocessed carbohydrate, as well as the balance of timing of meals if possible.

\*Try to send evenly portioned containers of food in your kids' lunches to eat every few hours, schedule permitting, rather than one giant container of food. This makes it easier for kids to simply open one little container of food, eat its contents, and be done with it!

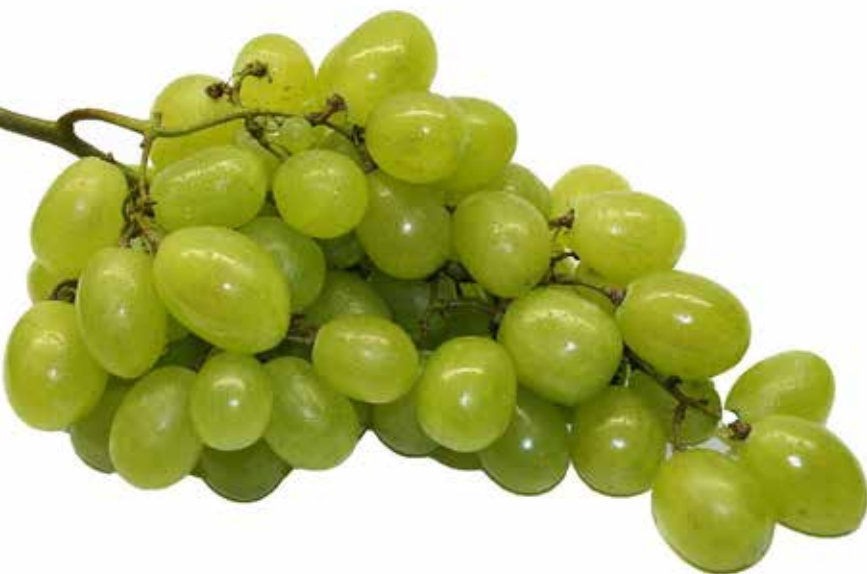
Finally, it never hurts to get active in the school system. Call the administrators and ask to arrange a meeting if there are any issues with kids not having enough time to properly eat their lunch, or if the meals offered are sub-par.

Bring a list of all the wonderful foods you eat at home to share with the attendees at the meeting, so they can learn for themselves. At the very least, it will bring attention to the fact that change is in order!

## CHANGING LIVES WITH PALEO

Feedback from one of our readers, who has been battling weight and other health issues for years now:

"I have a strong family history on both sides of type 2 diabetes so I have been very vigilant about diet and exercise. I was bewildered because the more I followed the whole grain, low fat diet, the fatter and fatter I got. I was diagnosed with hypothyroidism, but treatment



didn't generate weight loss.

As a 50 year old female at 5'5, this is not so attractive...was lethargic, depressed, puffy, and irritable. Anti depressants came next and left me feeling groggy and drugged. And the headaches just got worse. I was in a downward spiral mentally and physically. I had tried a litany of vitamins and supplements and never felt measurably different no matter how many I took.

I came across the Paleo Diet when I was researching ways to deal with side effects of anti-depressants... bought and read The Paleo Diet for Athletes and the guidance in there... helped me significantly during endurance activities.

It's been just 3 months eating the Paleo way. I am losing, on average, a pound a week and the weight loss pace is now picking up. I used to have to preload with Ibuprofen before big events to stave of soreness. I am now using no NSAIDS and experience little or no lasting soreness. Ski season just kicked off and I am skiing without stiffness or aches. I look and feel 10 years younger. I can breathe freely as my nasal allergies have magically disappeared.

Christi

## MAKE MEXICAN DINING PALEO

*Nell Stephenson, BS USC EXSC*

During the summer months, I often fancy a nice Mexican meal! After living Los Angeles for 15 years, I became quite spoiled by having the pleasure of experiencing authentic Mexican meals at the homes of friends and clients that were prepared by parents or relatives from different regions of Mexico.

You might think Mexican food - isn't that all rice and beans? Sour cream and tortillas? Yes, that is part of the typical diet, but it's not ALL of the typical diet. Think guacamole, tomato salsa, char-grilled steaks, sautéed prawns and shredded chicken, just to name a few options!

In keeping with exploring what to order at different restaurants, here are some great choices when you're

eatig out Mexican style!

\*Fajitas! Choose steak, chicken or prawns. Usually this dish will be a mixture of bell peppers, onions, perhaps carrots or other veggies, and protein sautéed in oil in a skillet. Ask them to hold the rice, beans, tortillas, and cheese, and order extra veggies instead.

\*Ceviche! A fish-based dish, which is cooked using lemon or lime. It's often served on a crisp tortilla, so just ask for it to be atop a bed of lettuce and eat with a fork instead of on the shell!

\*Coctel de Camarones! This shrimp cocktail is different from our version with the red cocktail sauce on the side for dipping. It often has smaller shrimp mixed with cucumber and onion in a tomato base.

\*Carne or Pollo Asada! Grilled skirt steak or chicken that's lean, mean and tasty!

\*Pescado! There will often be a fish option, so ask for it to be grilled and served with any veggie the chef has in house that day.

Be creative too. If you're at a more casual place, opt for grilled fish tacos (sans the tortilla), or, perhaps, a chopped salad (without the usual corn and black beans).

Read the menu carefully and thoroughly in order to make the necessary substitutions as needed. At the end the meal, you'll be satisfied, but not stuffed. And, you'll feel much better than your dining companion who ate the giant 1,500-calorie burrito with the works!



## ANTIOXIDANT SUPPLEMENTATION: A PALEO PERSPECTIVE

*George W. Peck*

Oxidation is a chemical reaction that transfers electrons between substances. Although this is crucial for life, it can also be damaging because it produces free radicals. Generating free radicals during biochemical reactions within the human body is a necessary and normal process, which, ideally, would be compensated for by our internal antioxidant systems. Over time, plants and animals have evolved complex systems to protect cells from free radicals.

Unfortunately, many environmental, lifestyle, and pathological situations can allow excess free radicals to accumulate. This results in oxidative stress that has been related to cardiovascular disease, cancer, and other chronic diseases that now account for a major portion of deaths.<sup>1,2</sup>

### ANTIOXIDANTS FIGHT THE DAMAGING EFFECTS OF FREE RADICALS

Antioxidants are compounds that hinder oxidative processes, delaying or preventing oxidative stress. By slowing or preventing oxidation of other molecules, antioxidants stop damaging effects of free radicals.<sup>2</sup>

The systems that protect cells from free radicals use multiple types of antioxidants. These include glutathione, beta-carotene, vitamin A, vitamin C, vitamin E, selenium, and zinc. Enzymes, such as catalase, superoxide dismutase, and various peroxidases are also used.

For more than five decades, studies aimed at determining the causes of aging have focused on oxidative stress due to free radicals, and the connection between oxidative stress and dietary antioxidants.<sup>3-6</sup> Low levels of antioxidants, or inhibition of antioxidant enzymes can cause oxidative stress and may damage or kill cells. Research into how antioxidants affect disease is increasing.

The research on antioxidant biochemistry is expanding at a rapid pace. Recent publications have examined hypoxia-inducible genes that protect against free radicals,<sup>7</sup> and links between selenium-poor soils. Free radicals and male infertility have also been studied.<sup>8</sup>

Other studies have looked at Kashin-Beck disease in central China,<sup>9</sup> antioxidant supplementation during



chemotherapy for breast cancer,<sup>10</sup> and timing of black currant extract consumption.<sup>11</sup>

Invitro studies of multiple antioxidants suggest wide antioxidant network between water- and fat-soluble antioxidant nutrients in a biological system, although more studies are needed.<sup>12</sup>

Antioxidants in fruits and vegetables have been linked to reduced risk of cardiovascular disease in a Swedish study.<sup>13</sup> Likewise, increased consumption of fruits and vegetables protects against stroke.<sup>14</sup> The important antioxidant properties of polyphenols<sup>15</sup> in fruits and vegetables<sup>16,17</sup> will be an area to watch as science progresses.

### **DIETARY SUPPLEMENTATION WITH ANTIOXIDANTS MAY DO MORE HARM THAN GOOD**

Consumption of antioxidant supplements has become widespread. It is estimated that about one third of adults in developed countries consume antioxidant supplements.<sup>18</sup>

The past decade has produced a large number of studies that assessed both the costs and benefits of antioxidant supplementation. Unfortunately, this research has shown that dietary supplementation with antioxidants may do more harm than good.<sup>19-22</sup>

For example, a meta-analysis (a scientific review combining results of related research) of antioxidant

studies found that supplementation with beta-carotene, vitamin A, and vitamin E did not increase lifespan.<sup>23-27</sup>

In fact, some reviews have suggested antioxidant supplementation may increase the risk of early death. For example, a meta-analysis of supplementation with beta carotene, vitamin A, and vitamin E suggested an increase in overall mortality among people taking supplements.<sup>23</sup>

Surprisingly, supplementation with vitamin C has been shown to decrease training efficiency,<sup>28</sup> cancel beneficial effects of exercise on insulin sensitivity,<sup>29</sup> and delay healing after exercise.<sup>30</sup> In addition, vitamin C supplementation did not decrease free radical damage to DNA.<sup>31</sup>

A recent meta-analysis of clinical studies that focused on vitamin E supplementation also showed increased overall mortality in those taking vitamin E.<sup>26</sup> It should be noted, however, that the importance of the antioxidant properties of vitamin E at the concentrations present in the body are not clear. It is possible that vitamin E is required in the diet for reasons unrelated to its ability to act as an antioxidant.<sup>32</sup>

### **CONCENTRATED, PURE ANTIOXIDANTS WERE NOT PART OF OUR ANCESTRAL DIET**

Our Paleolithic ancestors had no access to concentrated forms of pure antioxidants like those in modern supplements. They got all their vitamins (including antioxidants) and minerals from food they hunted or gathered, or, in the case of vitamin D, from sunlight.<sup>33,</sup>

<sup>34</sup>



Given our present knowledge about the apparent lack of benefit from consuming antioxidants as supplements, it is probably best to get antioxidants from fruits and vegetables, especially those grown organically in healthy soils.<sup>35, 36</sup>

## THE PALEO DIET IS GOOD SOURCE OF ANTIOXIDANTS

Fortunately, we can still get antioxidants from the foods we eat. Research shows that, aside from vitamin D, it is possible to consume a nutritionally balanced diet from contemporary foods that mimic the food groups and types available during the Paleolithic.<sup>37</sup>

With its high consumption of fruits and vegetables, the Paleo Diet provides optimum levels of vitamins and minerals as well as antioxidants. In this diet, vegetable consumption is unlimited, and fruit consumption is only limited by certain conditions, such as excess weight, insulin resistance, hypertension, metabolic syndrome, diabetes, kidney disease, and cardiovascular disease. For those who may need to limit fruits with a high sugar content, a table of fruits and sugars is available on our website.

Many of the Paleo Diet foods supply antioxidants.

Vitamin C is available in parsley, kiwi fruit, broccoli, persimmon, papaya, strawberry and citrus fruits. Asparagus, avocado, eggs, almonds, and spinach are good sources of vitamin E. Selenium can be obtained from Brazil nuts, walnuts, and lean meats. Lean meats and nuts are also good sources of zinc.<sup>38</sup>

Liver is a good source of pre-formed vitamin A. There are plant sources of beta carotene, but not of preformed vitamin A. Recent evidence indicates that the conversion of beta carotene to vitamin A in the liver is inefficient in humans.

The Paleo Diet, along with sun exposure and vitamin D supplementation, will optimize our health because it is our evolutionary heritage. Following the Paleo Diet, with its focus on lean meats, fruits and vegetables, along with a sensible exercise program, will go a long way toward alleviating the chronic diseases that plague our Western culture.

Next time, we'll take a look at current research that suggests the gut-brain connection plays an important role in IBS patients suffering from psychiatric diseases. We'll also show you how to make breakfast (without a grain-based product like cereal, a bagel, or toast) a healthy way to start the day.

*For sources see References: Section II*





## ALCOHOL-FREE DRINK OPTIONS

*Nell Stephenson, BS USC EXSC*

Hosting any parties? If you've mastered serving exclusively Paleo foods at dinner gatherings at home, but feel daunted by only serving water to accompany the meal, then try some of the following ideas to liven things up a little.

Planning a tropical island-esque dinner? How about a Pina Colada? Just mix 8 oz. of ice cubes and water with 6 oz. of frozen pineapple cubes, and 1 T of extra virgin coconut oil. If you want to offer it as more of a snack than a drink, throw in a scoop of egg white protein powder. For you athletes, try this as a recovery drink as well - what a nice alternative to a banana! Serve in a tall glass, and go ahead and add a little umbrella!

Going with a lighter fare menu? One of my favorite ways to offer water is to serve it spa-style. Slice oranges, lemons, cucumber and kiwi, and put a few of each in a large, attractive glass pitcher. Fill with water and chill; not only is it refreshing and tasty, but it looks quite handsome on the table!

Serving Mexican Food? A blended, icy citrus drink pairs well with the flavorful spiciness inherent to some of the dishes you may be serving. Thus, there's the good old, familiar tendency to have a Margarita, of course!. Whip 8 oz. of ice cubes with water in a blender with some frozen lemon and lime slices. Serve with a small piece of lime rind and a straw. Don't forget how important presentation is! While you won't fool guests into thinking they're having a Virgin Margarita, you'll be sparing them all the sugar you find in a pre-made mix.

Want something with a little color? Rather than serving juice (which is often quite sugary), use just a splash of juice with some sparkling water over ice (perhaps just an ounce with 8 - 10 ounces of water).

Finally, keep in mind that an occasional glass of red wine may be consumed in keeping with the Paleo Diet, as per *The Paleo Diet* book. Just save it for special occasions, and you'll enjoy it even more than if you had it all the time!



## PRIMAL IN THE KITCHEN

### PALEO PINA COLADA

- 1 cup water**
- 1 Tb. unrefined coconut oil at room temp**
- 1 cup fresh coconut milk**
- 12 oz. frozen pineapple cubes**
- pineapple wedges**

Combine water, coconut oil, and coconut milk in a blender. Puree until smooth. Add pineapple cubes and puree until thoroughly combined. Pour into chilled glasses and garnish with pineapple wedges.

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### MANGO MARGARITA MAMBO

- 1 cup water**
- 1 cup frozen mango cubes**
- 2 Tb. freshly squeezed lime juice**
- Lime wedges**

Combine water and mango cubes in blender and puree until smooth. Add lime juice and puree again. Pour into chilled glasses. Garnish with lime wedges.

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