

# THE PALEO DIET™

## The Paleo Diet Update

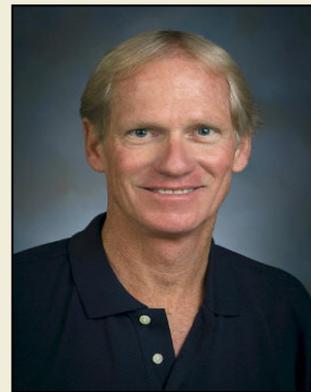
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Hello! Welcome to **The Paleo Diet Update** where we help you avoid the health risks of modern food production, and show you the benefits of meeting the nutritional needs evolution has built into our physiology. The Paleo Diet is based on scientific research into the ways that nutrition and disease are connected. By studying hunter-gatherer cultures, we gain insight into how our dietary needs evolved, and how to stay healthy amid today's bewildering nutritional choices that are often contrary to our nutritional design. In this issue, we look at the highly insulinotropic effect of milk and yogurt, in spite of their low glycemic load (GL), and we'll help you enjoy the holidays without that dreaded holiday weight gain.

Enjoy!



Loren Cordain, Ph.D.

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### Milk and Hyperinsulinemia *Pedro Bastos*

Last week, we discussed how foods with a high glycemic load (GL) elicit a high insulin response<sup>1</sup>, and explained that both cow's milk and yogurt, despite having a low GL, have a highly insulinotropic effect.<sup>2-7</sup> Does milk from other species also elicit such a response?

To answer this, we need to examine the possible mechanism behind the insulinotropic effect of cow's milk. Certain amino acids (isoleucine, phenylalanine, tyrosine and; especially leucine) that exist in cow's milk are insulinogenic.<sup>6,8</sup> For more than 20 years, it has been known that when we mix a carbohydrate with protein, the insulin response is higher than if elicited by either macronutrient alone.<sup>6,9,10</sup> This explains why milk, yogurt, fermented milk products and ice cream have been shown to have a higher insulin score than mature cheddar cheese,<sup>3</sup> which has a much lower lactose (the carbohydrate in milk) content as shown in the following table.<sup>11</sup>

### Macronutrient Profile of Various Dairy Products<sup>11</sup>

<b>Dairy Products</b>	<b>Protein (g)</b>	<b>Fat Total (g)</b>	<b>Lactose (g)</b>
mature cheddar cheese	24.90	33.14	1.28
whole cow's milk 3.25% milk fat	3.22	3.25	4.52
cow's milk, fluid, skim or nonfat 0.5% or less butter fat	3.37	0.08	4.96
yogurt, plain, whole milk	3.47	3.25	4.66
yogurt, plain, nonfat milk	5.63	0.18	7.68

Now that we know that the most likely mechanism behind this insulinotropic effect is insulinogenic amino acids plus lactose, let's compare the macronutrient content and the amino acid profile of milk from various species.

### Macronutrient Profile of Milk from Various Species<sup>11</sup>

<b>Milk</b>	<b>Protein (g)</b>	<b>Fat Total (g)</b>	<b>Lactose (g)</b>
cow's, whole, 3.25% milkfat	3.22	3.25	4.52
goat's	3.56	4.14	4.45
sheep	5.98	7.00	5.36
Indian buffalo	3.75	6.89	5.18

### Amino Acid Profile of Milk from Various Species<sup>12</sup>

<b>Milk</b>	<b>Leucine (g/100 g Protein)</b>	<b>Isoleucine (g/100 g Protein)</b>	<b>Phenylalanine (g/100 g Protein)</b>	<b>Tyrosine (g/100 g Protein)</b>
cow	9.3	4.9	4.2	4.6
goat	9.6	5.9	4.1	2.9
sheep	9.9	4.9	3.8	2.7
buffalo	9.9	6.1	4.0	3.0

By looking at the second and third tables above, we can see that, with the exception of tyrosine, the amino acid and macronutrient profiles of milk from all of these species are very similar. In fact, milk from sheep and buffalo has an even higher protein, lactose and leucine content than cow's milk. This strongly suggests that milk from all these species will elicit a very high insulin response.

So, does it really matter? You bet it matters!

Constantly consuming milk from any of these species (or any dairy product with a concomitantly high lactose and protein content) will cause a chronic state of hyperinsulinemia. This can cause insulin resistance<sup>13-15</sup>(the primary metabolic defect underlying the metabolic syndrome<sup>1</sup>), obesity<sup>16-18</sup>, and polycystic ovary syndrome<sup>1</sup>, increased inflammation<sup>19</sup>, and can chronically elevate the IGF-1/IGFBP-3 ratio<sup>1</sup>, which is implicated in various epithelial cell cancers, and other diseases.

Perhaps it is time to rethink the milk mustache!

References are available at: <http://www.ThePaleoDiet.com/v4n20.shtml>

Next time, we'll look at how to get the beneficial changes in blood chemistry and heart function that are inherent in fish and seafood consumption while avoiding the problems caused by the canning process and environmental pollutants. We'll also discover some wonderful ways to enjoy avocados.

### **This Week's Food Tip - Holidays the Paleo Way** *Nell Stephenson*



For many Americans, the time leading up to Thanksgiving and extending through to New Year's Day tends to be an outright gorge-fest, accompanied by the addition of unwanted pounds. As a die-hard "Paleo Ambassador", I am happy to report, in all honesty, that if one truly adheres to The Paleo Diet, one will not want many of the foods that tend to grace the typical holiday table. If it's not appealing to you, you won't eat it! If you've followed Paleo long enough to let your body reap its benefits, you'll glance at the stuffing, pies, crackers and cheese and so on, think about how awful you'll feel if you eat ALL that stuff and happily choose healthier foods.

Having said that, however, I certainly don't mean to imply that one should skip the holidays entirely!

I've done Paleo dinners the last few years and they've been a big hit, not only for me and my husband, but for our non-paleo friends as well!

Here's what I have featured on the menu:

Crudités plate (flash steamed broccoli and cauliflower, baby carrots, and cherry tomatoes) with avocado and lime (it may NOT be seasonal, but you've got to

love the avocado!)

Sliced apples (toss them in lemon juice to prevent oxidation, which causes the brownish color) tossed in cinnamon, and served on a platter with raw almonds and walnuts

Mixed green salad with dried (no sugar added) cranberries, toasted pecans, red onion, sliced figs, and apples

Pureed baked yam casserole, topped with sautéed Golden Delicious apples with a hint of rosemary

Oven-roasted turkey breast

Roasted vegetables

Home-made cranberry sauce

Baked apples with cinnamon

Fresh seasonal fruit salad

Yes, I made a lot of food (ask my husband, and he'll tell you I always make enough for an army), but everyone loved the selections, and no one left asking, "Where's the stuffing and pies"? Instead, they commented that they enjoyed the variety of foods that were still seasonal and they LOVED the fact that they left feeling satisfied not stuffed!

How nice is that!

Happy Holidays!

### **News and Upcoming Events**

A recent study looked at the relationship between insulin resistance and migraine occurrence. Insulin resistance is an underlying factor behind many diseases, and now it looks as if we may be able to add migraines to that list. This study found

insulin resistance to be present in migraine patients, and endothelial dysfunction as measured by high-sensitivity C-reactive protein when headaches were present. <http://cjns.metapress.com/link.asp?id=v27j053726742m41>

Researchers measuring the thickness of inner walls of the carotid arteries of obese children and teens found an increase in artery intima-media thickness typical to that of the average 45 year old. (On a personal note, although my 5-year-old son won't turn down an ice cream cone, he does eat Paleo almost every meal and he can tell you all about it! *Wiley*) <http://www.sciencedaily.com/releases/2008/11/081111142558.htm>



Alkaline diets can help maintain bone muscle mass as we age. Conversely, the net acid load from the typical diet may contribute to the reduction in lean tissue mass (sarcopenia) as people age. The high amounts of fruits and vegetables in the Paleo Diet help maintain muscle mass. We will be covering the topic of muscle gain for athletes in an upcoming issue. <http://www.ajcn.org/cgi/content/abstract/87/3/662>

### Our Recommendations

This Christmas, give family and friends a gift that will bring them benefits all year long - the scientifically-based, proven weight-loss program that is fully explained in *The Paleo Diet* by Dr. Loren Cordain. The Paleo Diet focuses on dairy-free and low glycemic load foods for a long-life, healthy nutritional lifestyle. Worldwide shipping is available from: <http://www.ThePaleoDiet.com>.

Start this New Year with a resolution that's easy to keep. Experience the dramatic and quick results reported by those following *The Dietary Cure for Acne*, and you'll also enjoy a nutritional program that not only cures acne, but may also prevent many of society's most prevalent diseases. *The Dietary Cure for Acne* is available as a paperback and ebook, along with a corresponding DVD presentation, from <http://www.dietaryacnecure.com>

For a simple explanation of acid-base balance by Dr. Cordain, and to see a chart showing the Potential Renal Acid Load (PRAL) of various foods, visit our nutritional tools section at: [http://www.thepaleodiet.com/nutritional\\_tools/acid.shtml](http://www.thepaleodiet.com/nutritional_tools/acid.shtml).

Talk to you next week!

To your optimum health,

Wiley Long, M.S., Nutrition and Exercise Science  
Editor

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