SUPER AGE

The Healthiest Plant-Based Milk: A Nutritional Showdown

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Not all plant milks are created equal—especially when you're choosing with longevity in mind.

From almond to oat, plant-based milks are everywhere. But it pays to go beyond the carton's front label.

We analyzed six of the most common plant-based milks: almond, soy, oat, hemp, coconut, and rice. We used USDA nutritional information and information on top brands and averaged thier macronutrient profiles and glucose load. We also looked at the information on vairous toxins and chemicals that can show up in plant milks. Nutritional values can vary significantly across brands and depending on whether a product is fortified, so it's important to treat this as a representative overview, not a uniform standard. Here's what we found:

Toxins in Plant Milks: What You Should Know

While plant-based milks are often chosen for their sustainability and digestibility, two recent studies raise additional concerns about how these products are processed and what they contain:

1. Toxic Metals in Plant-Based Beverages

A 2023 study published in the *Journal of Food Composition and Analysis* analyzed 60 soft beverages, including plant-based milks (almond and oat), and found that several—including nickel (Ni), manganese

(Mn), boron (B), cadmium (Cd), and arsenic (As)—exceeded safe drinking water standards in a significant portion of samples. While toxicity is unlikely at moderate consumption levels, long-term daily intake could contribute to metal accumulation, particularly in sensitive populations like older adults. Another study study published in the *Journal of Food Composition and Analysis* evaluated eight types of plant-based milks sold in the U.S. for their levels of essential minerals and trace elements. The researchers found:

- **Cadmium** was detected at higher levels in almond, soy, oat, and pea milks. These levels were not acutely toxic but could contribute to cumulative exposure over time.
- **Lead** was present in almond, cashew, and coconut milks, though typically in low concentrations still below FDA's reference levels.
- **Arsenic** was detected in some samples of hemp, rice, and coconut milks. Rice milk in particular has been a known source of inorganic arsenic in other food studies as well.

While the concentrations in most cases did not exceed safety thresholds, the presence of these metals—particularly in frequently consumed products—supports the case for choosing organic options when possible and rotating milk types to minimize accumulation.

2. Maillard Reaction Products (MRPs) and Nutrient Loss

Maillard reaction products are compounds created when heat transforms proteins and sugars—like when your toast crisps or your onions caramelize. They're responsible for some of our favorite flavors in cooked foods, and also plant-based milks. But under high heat or long storage, these compounds can evolve into advanced glycation end products (AGEs), which have been linked to inflammation and tissue damage in excess.

A 2024 study in *Food Research International* found that plant-based milks processed with ultra-high temperatures contained measurable levels of MRPs like furosine and acrylamide. While the occasional latte is no cause for concern, regularly consuming highly processed vplant milks could increase exposure. The key takeaway? Choose minimally processed or homemade milks when possible—and remember, even the Maillard reaction has a bright side: flavor.

Organic vs. Non-Organic: The Pesticide Factor

When it comes to plant-based milk, organic isn't just a marketing label—it's a meaningful filter for what you're actually putting into your body every day. Since many of these products come from crops vulnerable to heavy pesticide use or genetic modification, choosing organic can reduce your exposure to glyphosate, arsenic, and other residues linked to inflammation and metabolic disruption. Here's what to know about how different plant milks stack up when it comes to purity and safety.

- **Almond and oat milks** are often made from crops that are heavily **sprayed** with **pesticides**. Choosing organic reduces exposure to glyphosate and other residues.
- **Soy** is frequently genetically modified unless labeled organic or non-GMO. Organic soy is a **complete protein** and one of the nutritionally strongest plant-based options.
- **Hemp** is **naturally pest-resistant** and often grown with minimal chemicals—even if it's not certified organic.
- **Coconut and rice** have a lower pesticide profile but also lower protein content. Rice milk also has the highest glucose load and potential arsenic concerns.

The Verdict: Best Milk for Super Agers?

In general, you want a milk with minimal pesticide and chemical residue, especially if you drink a lot of it. Choose unsweetened, organic, and low-processed options whenever possible. Scan for additives like carrageenan and natural flavors—while the science is mixed on carrageenan's health impacts, it's worth being mindful of it. Choose milks with:

- High protein content to support muscle preservation
- Low glucose load to reduce glycation and inflammation
- Healthy fats that support cognition and cellular repair

Top Pick: Organic Unsweetened Hemp Milk

Why it wins: Low glucose load, a decent amount of protein, brain-supportive fats, and low pesticide and metal contamination risk.

Runner-Up: Organic Soy Milk

A complete protein powerhouse with a bit higher glucose load. Still a strong option if you tolerate soy well.

Use Sparingly:

- Oat and rice milks—higher sugar content and more processed; oat milk may contain glyphosate if not organic, and rice milk has high arsenic risks.

Store-Bought vs. Homemade: Should You DIY Your Milk?

For the DIY among us, homemade plant milk has one major advantage: you control what goes in. That means no added sugars, gums, emulsifiers, synthetic vitamins, or unwanted preservatives. It also minimizes chemical exposure from packaging and processing.

That said, the nutritional profile of homemade milks will vary and is generally lower in protein and fortified nutrients compared to commercial options, unless you specifically enrich them at home. For example, homemade almond or oat milk may contain fewer calories, carbs, or protein than their store-bought counterparts because they use fewer solids per serving and lack added calcium or B12 unless supplemented.

What You Need to Make Your Own

- **A high-speed blender**
- **Filtered water**
- **Raw ingredients**: Almonds, oats, hemp seeds, soybeans, etc.
- **A nut milk bag or fine mesh strainer**
- (Optional: pinch of salt, or cinnamon, or a few dates for flavor or sweetness)

As with store-bought varieties, homemade milks differ in nutrient density. Homemade soy milk delivers the most protein per cup, while oat milk has the highest carbohydrate and glycemic load. Almond and hemp milks are low-carb and rich in healthy fats—but lower in protein unless concentrated or enriched.

Best Homemade Option for Super Agers: Hemp Milk

- Requires no soaking and blends easily
- Naturally rich in omega-3 fats and protein
- Low glycemic and free from common allergens
- Grows with minimal pesticides and doesn’t need straining

Other easy DIY milks include oat and almond—but both require soaking and straining, and oats can spike blood sugar unless used in moderation.

Make a small batch and store it in a glass bottle in the fridge for up to 3 days. Shake before each use.

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