

## EXECUTIVE SUMMARY

To view the full report, including detailed test results, visit [healthybabyfood.org](https://healthybabyfood.org).

# Is Homemade Baby Food Better?

A new investigation: Tests compare toxic heavy metal contamination in homemade versus store-bought foods for babies

When does the baby food aisle pay off?  
When do homemade foods take the cake?  
We tested 288 foods to find out.

Report includes a data-driven guide to better baby food for parents seeking healthy choices for infants and toddlers



# Executive Summary

A Healthy Babies Bright Futures (HBBF) 2019 study found that 95% of baby foods tested were contaminated with toxic heavy metals, sparking national conversations about homemade baby food as a safer alternative. Questions about baby food safety continued when a 2021 Congressional investigation found baby foods to be tainted with “dangerous levels” of toxic heavy metals like lead and arsenic, giving parents one more reason to steer clear of the baby food aisle.

We wanted to know if the DIY work-around *actually works*. Our new study sought to determine if homemade purees and foods purchased outside the baby food aisle have lower heavy metal levels than pre-made, store-bought baby food. To find the answer, HBBF tested 288 foods and examined 7,000+ additional food testing data from published studies.

**We found no evidence to suggest that homemade baby food has lower heavy metal levels than store-bought brands.** Heavy metal levels varied widely by **food type**, not by who made the food.

Our top findings were:

- 94% of all food samples we tested contained detectable amounts of toxic heavy metals: 94% of store-bought baby food and 94% of homemade purees and family brand foods.
- Rice cakes and crisped rice cereal are **heavily contaminated** with arsenic. They contain higher levels of inorganic arsenic (the toxic form of arsenic than any other foods tested. Both stand out as foods to avoid for children and adults alike.
- Lead, arsenic, and cadmium levels are high in some fresh carrots and sweet potatoes. We recommend that parents vary the source by choosing from different brands, varieties, or stores each week to avoid accidentally serving a high-metal source often.
- The 10 most heavily contaminated foods consumed by babies, beginning with the highest, are: rice cakes, crisped rice cereal, rice-based puffs, brown rice, rice-based teething biscuits and rusks, white rice, raisins, teething crackers (non-rice), granola bar with raisins, and oat-ring cereal.<sup>1</sup>
- The 10 least contaminated foods consumed by babies, beginning with the lowest, are: bananas, grits, baby food brand meats, butternut squash, lamb, apples, pork, eggs, oranges, and watermelon.<sup>1</sup>

<sup>1</sup> From HBBF analysis of 7,900 tests of foods commonly consumed in the U.S., from studies by FDA and HBBF (see Section 2). The 10 most heavily contaminated foods are foods consumed by babies with the highest levels of lead and inorganic arsenic combined, the two metals of greatest concern given their ubiquity in baby food and their confirmed ability to harm the developing brain. The 10 least contaminated foods are foods consumed by babies with the lowest level of all four toxic heavy metals considered in this study, lead, cadmium, mercury, and inorganic arsenic combined. The rankings consider heavy metals only, not pesticides, pathogens, and other contaminants.



Our analysis of 7,000+ food tests revealed 40 popular baby foods and food groups to serve, limit and avoid.

See page 9 for the full list.



## **SKIP** 4 foods heavily contaminated with heavy metals

**Crisped rice cereal**

**Puffs (rice-based)**

**Brown rice with no extra cooking water used**

**Rice cakes**



## **SERVE** 13 foods with very low heavy metal contamination

FRUIT:

**Fresh and frozen fruit (not canned)**  
**Baby food brand fruits**

VEGGIES - BABY FOOD, FRESH, OR FROZEN:

**Green beans**  
**Peas**  
**Butternut squash**

TEETHING FOODS:

**Peeled and chilled cucumber**  
**Frozen bananas**

OTHER FOODS:

**Baby food brand meat**  
**Soft or pureed home-cooked meat**  
**Beans**  
**Eggs**  
**Infant formula**  
**Healthy low-metals snacks**  
(see page 9)



## **OTHER HEALTHY CHOICES:**

Grains, sweet potatoes, carrots, and other nutritious foods are also part of a healthy diet. See [page 9](#) for tips on how to serve these important but moderately contaminated foods in a varied diet.



Source: HBBF analysis of 7,900 tests of foods commonly consumed in the U.S., from studies by FDA and HBBF (see Section 2).

# The fundamental problem and the two-pronged solution

**Parents should not have to worry about the safety of their babies' meals and snacks.** They shouldn't need to wonder if they have served carrots or spinach too many days in a row, or guess if nutrient loss from boiling and peeling is an acceptable price for heavy metal reduction. This is a complex problem and will require a multi-pronged solution for both our **kitchens** and our **country**.

**The Kitchen Solution:** Until foods with reliably low heavy metal levels are widely available, parents can choose and prepare foods in ways that significantly reduce babies' exposures by following HBBF's one-page guide on fruits and vegetables, proteins, grains, snacks, and drinks (page 9). The most important step: **introduce and serve a variety of healthy foods**, whether baby food brands or homemade foods. Serving the same food every day for a long time can accidentally concentrate one or more contaminants in a child's diet. A varied diet avoids this and ensures a healthy mix of nutrients too.

**The Country's Solution:** To date, FDA has set limits for heavy metals in only two baby foods—infant rice cereal and juice—leaving the burden on parents to navigate the risks for all other foods. FDA should establish and enforce protective limits for heavy metals in all foods consumed by babies and young children. Heavy metal contamination spans all the food aisles of the grocery store; FDA's safety standards must as well. Standards extending beyond the baby food aisle would encompass foods eaten during pregnancy as well, a crucial time for lowering toxic metal exposures. FDA should require companies and growers to follow best practices to lower heavy metals in crops and processed ingredients.



# Food-by-food swaps to lower heavy metal levels

## Teething foods

95% ↓

To relieve teething pain, offer a **frozen banana** instead of **rice-based teething biscuits and rice rusks** for a 95% reduction in total heavy metals.

## Fruits

30x ↓

Offer **fresh or frozen (thawed) fruit** (including homemade purees) instead of **canned fruit** for less lead. Tests find lead 30 times more often in canned fruit than in fresh and frozen fruit. **Baby food brand fruit purees** are also recommended.

## Vegetables

43% ↓

Offer a **variety of vegetables** instead of **carrots, potatoes, and sweet potatoes every day** for a 43% reduction in total heavy metals.

## Meat, beans, eggs, nuts, seeds and their butters

69% ↓

**Baby food pureed meats** have 69% less lead and inorganic arsenic than peanut butter, on average, and significantly less cadmium as well. But nut butters are nutritious and should remain in the diets of allergy-free children, in rotation with a variety of other protein-rich foods.

## Cereal and grains

75% ↓

Offer **infant oatmeal cereal** instead of **infant rice cereal** for a 75% reduction in total heavy metals.

## Drinks

39% ↓

Offering **tap water** instead of **apple juice** provides a 39% reduction in total heavy metals (assuming national average levels of metals in unfiltered tap water<sup>2</sup>).

## Snacks

95% ↓

Offer **healthy low-metal snacks** instead of **baby food puffs** (rice-based) for a 95% reduction in total heavy metals. Try applesauce, beans or yogurt (see page 9 for more).

2 HBBF analysis of results from nearly 3,000 tap water tests from homes nationwide. From HBBF's tap water testing initiative (HBBF 2022): "Protect yourself and your family from toxic lead in tap water with a simple kit that provides customized action steps" <https://leadkit.hbbf.org/>.



Healthy Babies Bright Futures (HBBF) is working to create and support initiatives that measurably reduce exposures to neurotoxic chemicals in the first thousand days of development. Our efforts are inspired and supported by science and data, and designed to help restore the chance for a full life to children who would otherwise face brain-diminishing exposures to toxic chemicals beginning in utero.

Learn more at [hbbf.org](https://hbbf.org)