



What is Clear Food™?

With Clear Food, we're using next-generation genomic technology to analyze the world's foods at a molecular level, ingredient by ingredient. Our mission is to reveal the whole story—the one behind the label.

We believe you should feel confident in the food you're putting on the table. We are developing comprehensive reports based on objective molecular analysis on the foods you care about most. Our goal is to provide a convenient, reliable guide to the products and brands you shop for everyday.

Clear Food is brought to you by Clear Labs, the standard for molecular food quality in the global food industry. You can find more about us here:

<http://www.clearlabs.com>.



What is the Clear Score™?

Each sample we analyze is assigned a Clear Score™. The Clear Score is a representation of how closely a product's label claims match its actual molecular contents. The higher the score, the more closely a product abides by its claims.

To create the score, each item is molecularly analyzed through our proprietary DNA sequencing workflow. We screen for major, medium, and minor substitution, and we deduct points accordingly. We then examine products for nutrition-content accuracy, such as carbs, fat, calories, and protein. All Clear Score calculations are run through a secondary-analysis pipeline, scrubbed for statistical accuracy and error, and delivered to consumers via ClearFood.com.

Report #1: On Hot Dogs & Sausages



Our first report is on the quintessential American backyard party food—hot dogs. To produce this report, Clear Food analyzed 345 individual hot dogs and sausages from seventy-five different brands sold at ten food retailers. We may update this report to include even more local and regional brands as we expand our testing.

This report includes a history of how the typical hot dog makes it to your table, the high-level results of our tests, a breakdown of the highest scoring hot dogs on the market, and our shopping recommendations. Dig in!

The Hot Dog Machine

A Brief History of Hot Dogs

Sausages are among the world's oldest prepared foods. The Greek bard Homer wrote about black pudding or blood sausage in *The Odyssey* nearly 3000 years ago. The ancestor of the modern hot dog, the frankfurter, is a boiled sausage of smoked pork encased in mutton intestine. Historians trace the frankfurter's origins to thirteenth-century Frankfurt, and it was German immigrants who added the frankfurter to the melting pot of American cuisine. By the 1890s the "hot dog" was part of the American experience, and by the turn of the twentieth century, Americans could order one at a baseball game.



How are Hot Dogs Made?

Today, hot dogs are usually processed in factories, where meat trimmings, spices, and other ingredients are chopped and blended into an emulsification and routed to automatic stuffers. The stuffers pump the emulsified hot dog mixture into casings. Then, long links of hot dogs are cooked in a smokehouse, cooled by being passed under a water shower, and packaged. If variety meats, such as livers, kidneys, and hearts are among the ingredients in a hot dog or sausage, the label should state "with variety meats," and the particular ingredient should be listed on the package.

Hot Dogs by the Numbers

Los Angeles was the most hot-dog hungry American city. Residents consumed thirty-nine million hot dogs in 2014, and Dodgers fans did their part: they ate three million hot dogs last season. Not to be outdone, Boston Red Sox fans devoured five million sausages, making Fenway Park the sausage capital of the major leagues.

Hot Dogs as Regional Identifiers

 Seattle Bratwurst, cream cheese, sliced raw jalapeños, cabbage, sriracha	 Chicago Poppy seed bun, pickle spear, celery salt, sport peppers, tomatoes, green relish, chopped onions, mustard	 Kansas City Hot dog in a sesame seed bun, sauerkraut, melted Swiss cheese
 Memphis Bacon-wrapped hot dog, barbeque sauce, scallions, shredded cheddar cheese	 Denver Hot dog, chopped red onions, green chile sauce, sour cream, chopped jalapeños	 Boise Hot dog in a baked potato topped with bacon bits, chives, and sour cream

Hot dogs are America's original street food. The humble hot dog is a powerful vehicle of regional identity. The classic New York Style hot dog is covered with spicy brown mustard and either sauerkraut or onions sauteed with tomato paste. A proper Chicago dog is nestled in a poppy-seed bun and topped with a pickle spear, celery salt, sport peppers, tomatoes, green relish, chopped onions, and mustard. No self-respecting Chicagoan defiles a Chicago Dog with ketchup. A Kansas City dog is topped with sauerkraut and melted swiss cheese. At a Braves game, your Atlanta dog is topped with coleslaw.

Maybe Americans obsess about what's on their hot dogs because they'd prefer not to think about what's in them. Sausages are the world's original "mystery meat," and hot dogs have always provoked ingredient anxiety. In mid-nineteenth-century America rumors circulated that some butchers made inexpensive, frankfurter-style sausages with ground dog meat. Though no one knows for sure, this might explain how the hot dog got its name. One thing's certain: questions about the hot dog are as old as the hot dog itself. And they're not wholly unwarranted.

Our Results

Of the 345 hot dogs and sausages Clear Food analyzed for this report, 14.4% were problematic in some way. Problems included substitutions and hygienic issues. Substitution occurs when ingredients are added that do not show up on the label. Hygienic issues occur when some sort of non-harmful contaminant is introduced to the hot dog, in most cases, human DNA. Here's what we found:

- Substitution: We encountered a surprising number of substitutions or unexpected ingredients. We found evidence of meats not found on labels, an absence of ingredients advertised on labels, and meat in some vegetarian products.
- Hygienic issues: Clear Food found human DNA in 2% of the samples. 2/3rds of the samples with human DNA were vegetarian products.*

We found evidence of chicken (in 10 samples), beef (in 4 samples), turkey (in 3 samples), and lamb (in 2 samples) in products that were not supposed to contain those ingredients.

Pork is a particularly unwelcome substitution in any food when you consider that significant numbers of people do not eat pork for religious reasons. Clear Food found pork substitution in 3% of the samples we tested. In most cases, pork found its way into chicken and turkey sausages. Pork substitution was an issue in products across the price spectrum being sold at a wide variety of retailers.

While some of these substitutions, hygienic issues, other variances, or off-label ingredients may be permitted by the FDA, our scientific disclosure allows you, as the consumer, to decide whether the variances or problems meet your personal standard in your buying decision.

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***Correction:** In a previous version of this report, the second bullet point under the "Our Results" section read: "Hygienic issues: Clear Food found human DNA in 2% of the samples, and in 2/3rds of the vegetarian samples." This bullet point has been corrected to read: "Hygienic issues: Clear Food found human DNA in 2% of the samples. 2/3rds of the samples with human DNA were vegetarian products." The facts, cited correctly throughout the rest of the report, are that Clear Food found human DNA in 2% of the 345 samples we tested. Of the six samples with human DNA, 4 (2/3rds) were vegetarian products. We apologize for the lack of clarity, and we regret the error. Thank you.

14.4% of the hot dogs and sausages we tested were problematic.

Human DNA found in 2% of samples
2/3 of the human DNA samples were vegetarian products.

10% of Vegetarian products contained meat.
We found chicken in a vegetarian breakfast sausage and pork in a vegetarian hot dog.

Nutritional Label inaccuracies
Labels of some vegetarian products exaggerated the amount of protein in the item by as much as 2.5 times.

4 of the 21 vegetarian samples we tested had hygienic issues.
Vegetarian items accounted for 67% of the hygienic issues found in the report.

Pork where no pork should be.
We found pork substitution in 3% of the samples. In most cases pork was substituted for chicken or turkey. We found that this issue occurred in products of all price ranges.

Overall number of unexpected ingredients

10 Chicken	09 Pork	04 Beef
03 Turkey	02 Lamb	

What do you want us to test next?
Burgers? Vegetarian/Vegan? Gluten Free?

You Tell Us!

Clear Food Top 10¹

Despite the problems we found, what was most promising in our tests was the fact that there are a number of hot dog manufacturers, large and small, that are producing high-quality hot dogs with integrity. These producers were not limited to organic producers or high-end specialty brands—products across a variety of price points scored well.

1. Disclaimer: We apply the Clear Score at the brand level to reward the brands with the highest average scores. The Clear Score for brands is an average of the scores for individual products within that brand's line based on the products tested at that time. We did not test most brands' entire product line. Refer to our posted [Terms of Use](#) for additional disclaimers and limitations.













To be included in the Clear List, brands had to score a 90 or above.

Top 10 Major Hot Dog Brands

	1. Butterball	96
	2. McCormick	96
	3. Eckrich	96
	4. Hebrew National	96
	5. Simply Balanced	93
	6. Aidells	92
	7. Jennie-O	91

Top 10 Specialty and Regional Hot Dog Brands

	1. Gardein	95
	2. Taverrite's	93
	3. Field to Family Natural Foods	92
	4. Evergood Fine Foods	93
	5. Showboat	92
	6. Diestel	91
	7. Nature's Rancher	91

	8. Boar's Head			8. Yves Veggie Cuisine	
	9. Oscar Mayer			9. Fra'Mani Handcrafted Foods	
	10. O Organics			10. Lou's Famous	










Top 3 Retailers



Categorically Speaking

In addition to ranking hot dog brands, the Clear Food team has combed through the data to surface the highest scoring tested products² by category. Whether you want an all-American, all-beef hot dog, a leaner turkey dog, or a sausage breakfast link, these are the products with the highest scores in each category.

2. Clear Labs does not endorse every product in a brand's product line.

<p>Best Hot Dog</p> <p></p> <p>Oscar Mayer Premium Jumbo Beef Franks (\$4.99)</p> <p>High quality and good value in a high-visibility national brand.</p> <p>Honorable Mentions:</p> <p>Ball Park Angus Beef Franks - Bun Size, (\$4.49). Hebrew National Franks: Beef, Reduced Fat, (\$5.99).</p>	<p>Best Turkey Sausage</p> <p></p> <p>Ball Park Smoked White Turkey Franks (\$5.99)</p> <p>Honorable Mentions:</p> <p>Butterball Polska Kielbasa, Turkey Sausage, (\$8.48).</p>	<p>Best Smoked Sausage</p> <p></p> <p>Eckrich Smoked Sausage Family Pack (\$7.98)</p> <p>A good value at Walmart.</p> <p>Nutritional information was highly accurate.</p> <p>Honorable Mentions:</p> <p>McCormick Grill Mates Smoked Sausage, Mesquite, (\$3.48).</p>
<p>Best Italian Sausage</p> <p></p> <p>Taverrite's Mild Italian Pork Sausage (\$5.99)</p> <p>Taverrite's is a specialty brand specializing in Italian sausage and made the best product we tested.</p> <p>Honorable Mentions:</p> <p>Safeway Farms Italian Sausage, (\$3.99).</p>	<p>Best Corn Dog</p> <p></p> <p>Foster Farms Jumbo Corn Dogs (\$3.39)</p> <p>This fun family food item is a safe bet at a low price.</p> <p>Honorable Mentions:</p> <p>Trader Joe's Meatless Corn Dogs, (\$2.99).</p>	<p>Best Breakfast Sausage</p> <p></p> <p>Applegate Classic Pork Breakfast Sausage (\$5.49)</p> <p>We observed slightly less fat and a few less calories than were reported on the label.</p> <p>Honorable Mentions:</p> <p>Jennie-O Turkey Breakfast Sausage Links, Lean, (\$3.99).</p>
<p>Best Brat</p> <p></p> <p>Johnsonville Stadium Brats (\$4.99)</p> <p>Though we tested a number of bratwurst products, Johnsonville Stadium Brats was the only product with a Clear Score of 95 or higher.</p>	<p>Best Vegan/Vegetarian Option</p> <p></p> <p>Trader Joe's Soy Chorizo (\$1.99)</p> <p>This is a good value at Trader Joe's. Nutritional information was more accurate than most of the vegetarian products we tested.</p> <p>Honorable Mentions:</p> <p>Trader Joe's Meatless Corn Dogs, (\$2.99).</p>	<p>Best Chicken Sausage</p> <p></p> <p>Aidells Organic Smoked Chicken Sausage, Spinach & Feta (\$8.99)</p> <p>Expensive but worth it.</p> <p>Honorable Mentions:</p> <p>365 Mild Italian Chicken Sausage,</p>

(\$5.99).

Find The Clear List: [Sausages and Hot Dogs with a Clear Score of 95 and above](#) in the appendix below.

Recommendations

If you want to avoid eating pork...

If you're a vegetarian...
Trader Joe's is a good bet.

If you shop at Target...
Look for Aidell's, Hebrew National, and Ball



If you shop at Trader Joe's...

Try their soy chorizo and their meatless corn dogs

2. Safeway
3. Walmart

We collected a substantial number of samples at five major retailers: Safeway, Target, Trader Joe's, Walmart, and Whole Foods. We averaged the Clear Scores of all the brands we tested from each retailer. These 3 are the retailers with the highest Clear Score averages.

Buy major brands like Oscar Mayer and Johnsonville

Big Takeaways

Our biggest insight when analyzing the data was that there was no correlation between price and Clear Score.

We were surprised to find that prepared vegetarian sausages face some pretty serious challenges including hygienic and substitution issues. Finding even trace amounts of meat in vegetarian products is troubling, especially because many vegetarians abstain from eating meat for dietary, ethical, and religious reasons.

Target was the highest-ranked retailer of the ten retailers we purchased samples from. Among the retailers from whom we purchased 25 or more samples, Target, Safeway, and Walmart were the top three.

Finally, pork substitution is a more pernicious problem than we had suspected it might be. The Kosher products we tested were 100% pork free.

Appendix



Clear List

The Clear List is a comprehensive list of high-quality, safe, and accurate products. This list only includes products with a Clear Score of 95 or above. A score of 95 or above means that there were no hygienic issues, and no substitutions found in our molecular tests. There could be slight discrepancies in the observed nutritional information vs. the nutritional content on the label, but nothing that could be harmful or intentionally mislabeled.

Score <i>IT</i>	Name <i>IT</i>	Retailer <i>IT</i>	Price <i>IT</i>
99	Taverrite's Mild Italian Pork Sausage	Safeway	\$5.99
99	365 Mild Italian Chicken Sausage	Whole Foods	\$5.99
99	Aidells Organic Smoked Chicken Sausage, Spinach & Feta	Whole Foods	\$8.99
98	Hebrew National Franks, Beef, Reduced Fat	Safeway	\$5.99
98	Ball Park Smoked White Turkey Franks	Target	\$3.89
98	McCormick Grill Mates Smoked Sausage, Mesquite	Walmart	\$3.48

98	Eckrich Smoked Sausage, Naturally hardwood smoked Family Pack	Walmart	\$7.98
97	Aidells Minis Chicken & Apple Smoked Chicken Sausage	Andronico's	\$7.99
97	Safeway Farms Italian Sausage	Safeway	\$3.99
97	Jennie-O Turkey Breakfast Sausage Links Lean	Safeway	\$3.99
97	Oscar Mayer Premium Jumbo Beef Franks	Safeway	\$4.49
97	Foster Farms Jumbo Corn Dogs	Safeway	\$3.39
97	Trader Joe's Soy Chorizo	Trader Joe's	\$1.99



97	Butterball Polska Kielbasa, Turkey sausage	Walmart	\$8.48
97	Applegate Classic Pork Breakfast Sausage	Whole Foods	\$5.49
97	Doc's amazing El Chipotle chicken sausage	Whole Foods	\$6.49
97	Fra'Mani Salt & Pepper Pork Sausage	Whole Foods	\$6.99
97	Field to Family Natural Foods Hot Italian Pork Sausage	Whole Foods	\$11.23
96	Farmer John Classic Smoked Sausage	Fresh and Easy	\$4.99
96	Johnsonville Stadium Brats	Safeway	\$4.99
96	Applegate Naturals Savory Turkey Breakfast Sausage	Safeway	\$5.49
96	Applegate Naturals Chicken & Maple Breakfast Sausage	Safeway	\$5.49
96	Jimmy Dean Turkey Sausage Links	Safeway	\$5.99
96	Ball Park Angus Beef Franks; Bun Size	Target	\$4.49
96	Trader Joe's All Natural Uncured Hot Dogs	Trader Joe's	\$3.99
96	Trader Joe's Corn Dogs Meatless	Trader Joe's	\$2.99
96	Oscar Mayer Chipotle Dogs, Southwest Style	Walmart	\$1.50
96	Johnsonville Butcher Shop Style Cheddar Cheese & Bacon Smoked Sausage	Walmart	\$3.44
96	Applegate Naturals Chicken & Maple Breakfast Sausage	Whole Foods	\$5.49
96	Applegate Naturals Savory Turkey Breakfast Sausage	Whole Foods	\$5.49
96	Fra'Mani Chorizo Pork Sausage	Whole Foods	\$6.99
95	Fresh and Easy Louisiana Brand Hot Sausage	Fresh and Easy	\$4.99
95	Jones All Natural Fully Cooked Turkey Sausage	Safeway	\$2.19
95	Farmer John Beef Franks	Safeway	\$3.99
95	Morning Star Farms Veggie Dogs	Safeway	\$3.99
95	Jennie-O Turkey Breakfast Sausage Patties	Safeway	\$3.99

95	Oscar Mayer Selects Hardwood Smoked Uncured Turkey Franks	Safeway	\$4.49
95	Great Plains Sausage Works Chicken Breakfast Links	Safeway	\$4.49
95	Al Fresco Chicken Sausage, Sweet Italian Style	Safeway	\$5.00
95	Al Fresco Chicken Sausage, Roasted Pepper & Asiago	Safeway	\$5.00
95	Aidells Mango Smoked Chicken Sausage	Safeway	\$5.99
95	Evergood Louisiana Brand Hot Link Sausage	Safeway	\$5.99
95	Oscar Mayer Premium Bun-Length Beef Franks	Safeway	\$4.49
95	Ball Park "Park's Finest" Signature Seasoned Frankfurters	Safeway	\$6.49
95	Ball Park "Park's Finest" Signature Seasoned Frankfurters	Target	\$4.49
95	Hebrew National Franks, Beef, Reduced Fat	Target	\$5.19
95	Oscar Mayer Chili Cheese Dogs	Walmart	\$1.50
95	Guy Fieri Tequila Lime Chicken Sausage	Walmart	\$3.00
95	Jimmy Dean All Natural Regular Pork Sausage	Walmart	\$3.98
95	Gardein Good Start Breakfast Patties	Whole Foods	\$4.49
95	Aidells Organic Smoked Chicken Sausage, Chicken & Apple	Whole Foods	\$8.99

What is Clear Food?

Clear Food is the world's first consumer guide to food based on DNA analysis. Our mission is to leverage the power and objectivity of modern genomic analysis to bring simplicity, clarity, and trust to food. We give consumers the information they need to make the best choices in the grocery store for themselves and their families.

We use genomic analysis technology that has never before been available at the hands of consumers to translate a food's molecular profile into actionable information that consumers can use to find safe and healthy foods, at the best value. Our software platform is more accurate than any food-testing platform currently available. It removes any doubt about how accurately the label concurs with what is actually in the food. To put it simply, we are the only science-backed rating system that gives you an objective guide to the highest-quality and best value foods and brands based on the products tested.

Our testing is performed on the new testing platform built by [Clear Labs](#), the standard for molecular food quality in the food industry. Clear Labs is led by a team of some of the best scientists, genomicists and big data experts in the country, working together since 2013 to build a completely new way to analyze food.

Please refer to our posted [Terms of Use](#) for applicable limitations and disclaimers.

Clear Score Methodology

Specifically, all samples are considered within a statistical score-error range. We first test food products for DNA using Clear Labs' proprietary next-generation genomic sequencing workflow. We assign a significant weight to DNA-based data, factoring in DNA degradation and signal parameters (some ingredients might not have DNA or their DNA might have degraded). We screen for major, medium, minor & trace substitution, and we deduct points on the substitution axis. We attempt to capture all ingredients within a sample, but certain foods might not be homogenous (in this case results might not capture the entirety of the product).

We then examine products for nutrition content accuracy, such as carbs, fat, calories, & protein. We compare labeled value versus observed values and create a statistical methodology for deducting points based on meaningful deviations from claims. We compare molecular results of these tests against industry standards, and we deduct points based on a rigorous statistical algorithm.

Once a base score is calculated, we add a final layer of molecular screening for presence of gross violations of dietary or religious preferences and major hygienic issues. Once this final filter has been applied, we calculate a statistical distribution for a given category. Raw scores of individual products are compiled together and weighted against individual brands to generate brand and retail rankings.

All Clear Score calculations are run through a secondary analysis pipeline, scrubbed for statistical accuracy and error, and delivered to consumers via [ClearFood.com](#).

Each score represents testing performed at a single moment in time. Testing is not longitudinal. In future updates we may update scores based on additional, subsequent testing and re-testing.



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