

The 2006 Exposure Assessment for Acrylamide

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Previous Work

- 2003 Exposure Assessment presented at FDA Food Advisory Committee meeting in February 2003
- First update, 2004
- For details on model and assumptions, see the 2004 Exposure Assessment at http://www.cfsan.fda.gov/~lrd/pestadd.html#_acrylamide.



2006 Exposure Assessment

- Data included in 2006 assessment
 - New data:
 - 2005 targeted data, Table 4,
<http://www.cfsan.fda.gov/~dms/acrydata.html>
 - 2004 and 2005 Total Diet Study (TDS) data, Tables 2 and 3,
<http://www.cfsan.fda.gov/~dms/acrydat2.html>
 - Previous data from 2003, 2004 assessments:
 - 2002-2004 targeted data, Tables 1-3,
<http://www.cfsan.fda.gov/~dms/acrydata.html>
 - 2003 TDS data,
<http://www.cfsan.fda.gov/~dms/acrydat2.html>
- 66 food categories evaluated
 - Ethnic, regional foods included



Top 20 Foods by Mean Acrylamide Intake

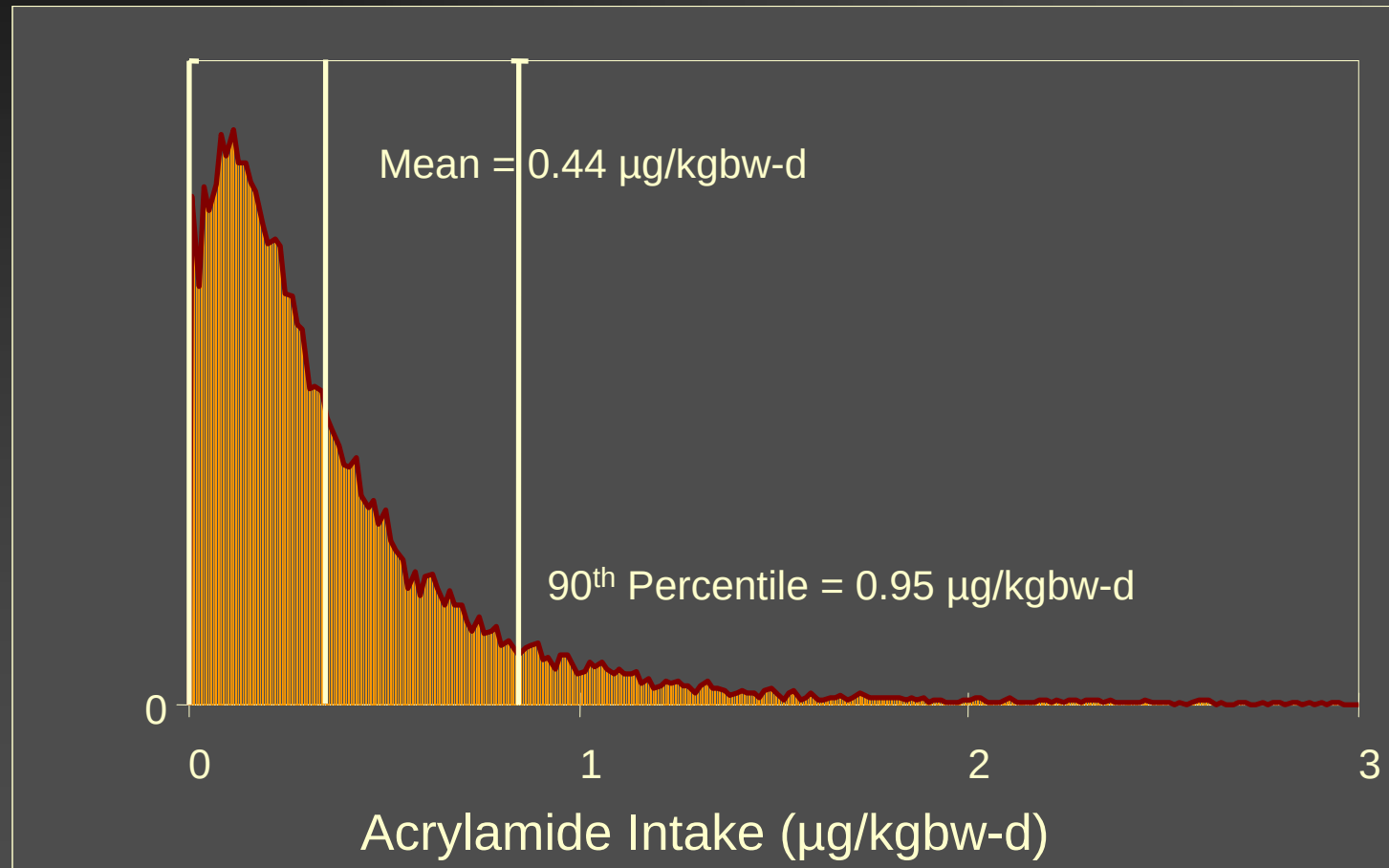
Food	Mean AA intake ($\mu\text{g/kgbw-day}$)	Cumulative Percentile	Food	Mean AA intake ($\mu\text{g/kgbw-day}$)	Cumulative Percentile
French Fries (RF*)	0.070	0.16	Chile con Carne	0.014	0.80
French Fries (OB*)	0.051	0.28	Corn Snacks	0.011	0.82
Potato Chips	0.045	0.38	Popcorn	0.007	0.84
Breakfast Cereal	0.040	0.47	Pretzels	0.007	0.86
Cookies	0.028	0.53	Pizza	0.006	0.87
Brewed Coffee	0.027	0.60	Burrito/Tostada	0.006	0.88
Toast	0.023	0.65	Peanut Butter	0.003	0.89
Pies and Cakes	0.018	0.69	Breaded Chicken	0.003	0.90
Crackers	0.017	0.73	Bagels	0.003	0.90
Soft Bread	0.014	0.77	Soup Mix	0.003	0.91

* RF, restaurant fries; OB, oven baked



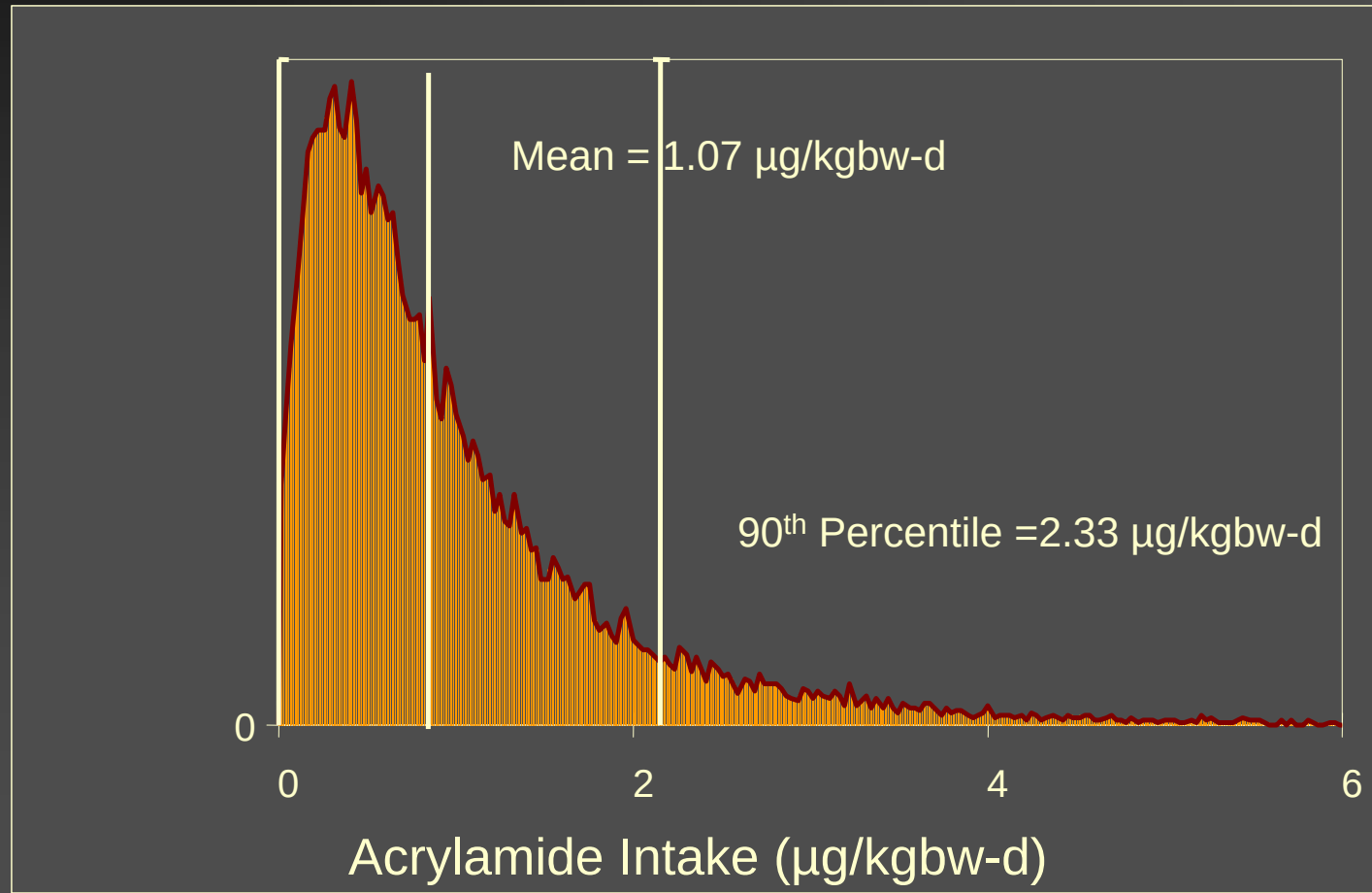
Acrylamide Intake Distribution

CFSII 1994-96, 1998; 2+ Population



Acrylamide Intake Distribution

CFSII 1994-96, 1998; 2-5 Population



Acrylamide Per Portion

Food	AA Conc ($\mu\text{g}/\text{kg}$)	Portion Size (g)*	AA (μg) / Portion
Brewed Coffee	7.8	240	1.9
Canned Black Olives	242.8	15	3.6
Breakfast Cereal	119.4	55	6.6
Potato Chips	597.5	30	17.9
Postum	93	240	22.3
French Fries (RF)	404.1	70	28.3
Prune Juice	214.4	140	30.0
French Fries (OB)	697.8	70	48.8

* Portion Sizes From 21 CFR 101.12, Table 2



Mean Intake Summary

- Original “crude” estimates, 2002
 - 0.7 $\mu\text{g/kg-bw-d}$
 - 0.3-0.8 $\mu\text{g/kg-bw-d}$
- First FDA model, 2003
 - 0.4 $\mu\text{g/kg-bw-d}$, ages 2+
- Updated FDA model, 2004
 - 0.4 $\mu\text{g/kg-bw-d}$, ages 2+
- Updated FDA model, 2006
 - 0.4 $\mu\text{g/kg-bw-d}$, ages 2+
 - No difference seen for subsets of Hispanic, Asian, or Southern regional consumers



Summary

- No significant differences in the mean intake of acrylamide were seen in three exposure assessments carried out from 2003 to 2006
 - Mean intake = 0.4 $\mu\text{g/kg-bw-d}$, ages 2+
 - 100 percent of population consumes acrylamide as part of the diet
 - The FDA database of acrylamide levels in food, currently numbering almost 2500 samples, is robust.

