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EFSA's Concise European Food Consumption Database: A contaminants perspective

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European Food Safety Authority

DATA COLLECTION AND EXPOSURE

Parma, 17 March 2008
EFSA/DATEX/2008/01

**Guidance Document for the use of the Concise European
Food Consumption Database in Exposure Assessment**



“EFSA started the development of the Concise European Food Consumption Database intended to be used by EFSA Panels and others, including Member States, in order to perform *preliminary exposure analyses* during the first step of the exposure assessment.”

“This will allow for the assessment of high and/or low level of exposure to the substance/agent of interest.”



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Guidance Document for the use of the Concise European Food Consumption Database in Exposure Assessment



- The Concise European Food Consumption Database is called “concise” since it is intended to provide a limited number of data that will allow easy performance of a conservative exposure assessment.
- EFSA has developed an ad hoc system with 15 broad food categories, covering, at present, 17 Member States.
- The Concise Database is proposed to be used by EFSA Scientific Panels and Member States for *screening purposes*.

Concise European Food Consumption Database



The database applied in practice

Three examples:

- Acrylamide
- Ochratoxin A
- Marine biotoxins

Mean acrylamide intake in The Netherlands (RIVM-RIKILT, 2007)

Food product	Mean (µg/kg)	Min-Max (µg/kg)	Dietary intake (µg/day)
Gingerbread	353	271-521	1.4
Potato chips	343	153-579	2.2
French fries	309	<30-1270	5.4
Spiced biscuits	284	117-390	1.0
Cookies	202	33-696	2.6
Knäckebröd/toast	174	9-914	0.6
Salty snacks	155	11-764	0.2
Peanut butter	113	107-118	0.4
Chocolate	96	75-116	<1
Breakfast cereals	54	<8-208	<1
Nuts	46	22-83	0.2
Coffee (brewed)	15	9-28	5.0
Bread	8	<8-53	1.0
		<i>Total mean intake</i>	<i>20.0</i>

Attempt to estimate the mean acrylamide intake by using the NL data in the concise database

- **All cookies, biscuits, toast, bread etc fall in the category “cereals and cereal products”.**
- **Mean cereal consumption 219 g.**

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- All cookies, biscuits, toast, bread etc fall in the category “cereals and cereal products”.
- Mean cereal consumption 219 g.
- **Mean acrylamide intake from cereal products:**

$$219 \times (353+284+202+174+54+8)/6 = 39 \mu\text{g/person per day}$$

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Original mean NL acrylamide intake 6.6 μg /person per day

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Attempt to estimate the mean acrylamide intake by using the NL data in the concise database

- **Potato chips and French fries fall in the category “potatoes”**
- **Mean potato consumption 128 g.**
- **Mean acrylamide intake from potato products:**

$$128 \times (343+309)/2 = 42 \mu\text{g/person per day}$$

Mean NL intake from potato products = 7.6 μg /person per day

Mean acrylamide intake in The Netherlands (RIVM-RIKILT, 2007)

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Attempt to estimate the mean acrylamide intake by using the NL data in the concise database

- Nuts fall in the category “vegetables, nuts and pulses”**
- Mean potato consumption 182 g.**
- Mean acrylamide intake from potato products:**

$$182 \times 46 = 8 \mu\text{g/person per day}$$

Mean NL intake from nuts = 0.2 μg /person per day

The example of acrylamide

- **Mean acrylamide intake in NL** **20 μg /person per day**
- **Mean acrylamide intake using NL data in Concise Database** **110 μg /person per day**

Mean ochratoxin A intake in The Netherlands, Bakker et al. 2007

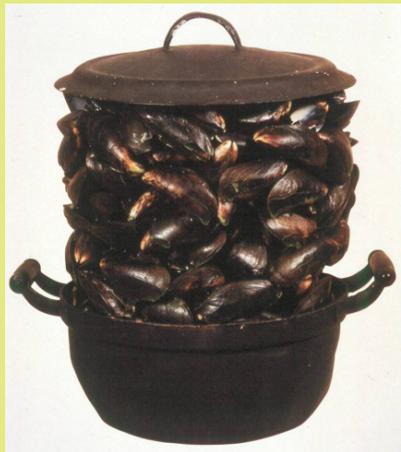
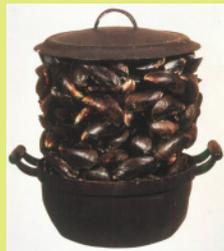
Food product	Mean Concentration (µg/kg)	Mean food Consumption (g/person/day)	Mean OTA intake (ng/person/day)
Raisins	1.87	1	2
Rye	0.73	4	3
Cocoa	0.59	4	2
Grape juice	0.49	2	1
Red wine	0.25	17	4
Other cereals*	0.22	159	35
Meat	0.04	133	5
Nuts	0.03	8	<1
Beer	0.024	117	3
Coffee (brewed)	0.012	448	5
Milk, dairy products	0.007	388	3
* without rye		<i>Total mean intake</i>	<i>63</i>

The example of ochratoxin A using the concise database

Food product	Mean Concentration (µg/kg)	Mean food Consumption (g/person/day)	Mean OTA intake (ng/person/day)
Raisins	1.87	1 107	2 200
Rye	0.73	4 219	3 160
Cocoa	0.59	4 43	2 25
Grape juice	0.49	2 70	1 34
Red wine	0.25	17 39	4 10
Other cereals*	0.22	159 219	35 48
Meat	0.04	133 139	5 6
Nuts	0.03	8 182	<1 5
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* without rye		Total mean intake	63 506

Evaluation of marine biotoxins by EFSA's Scientific Panel on Contaminants in the Food Chain

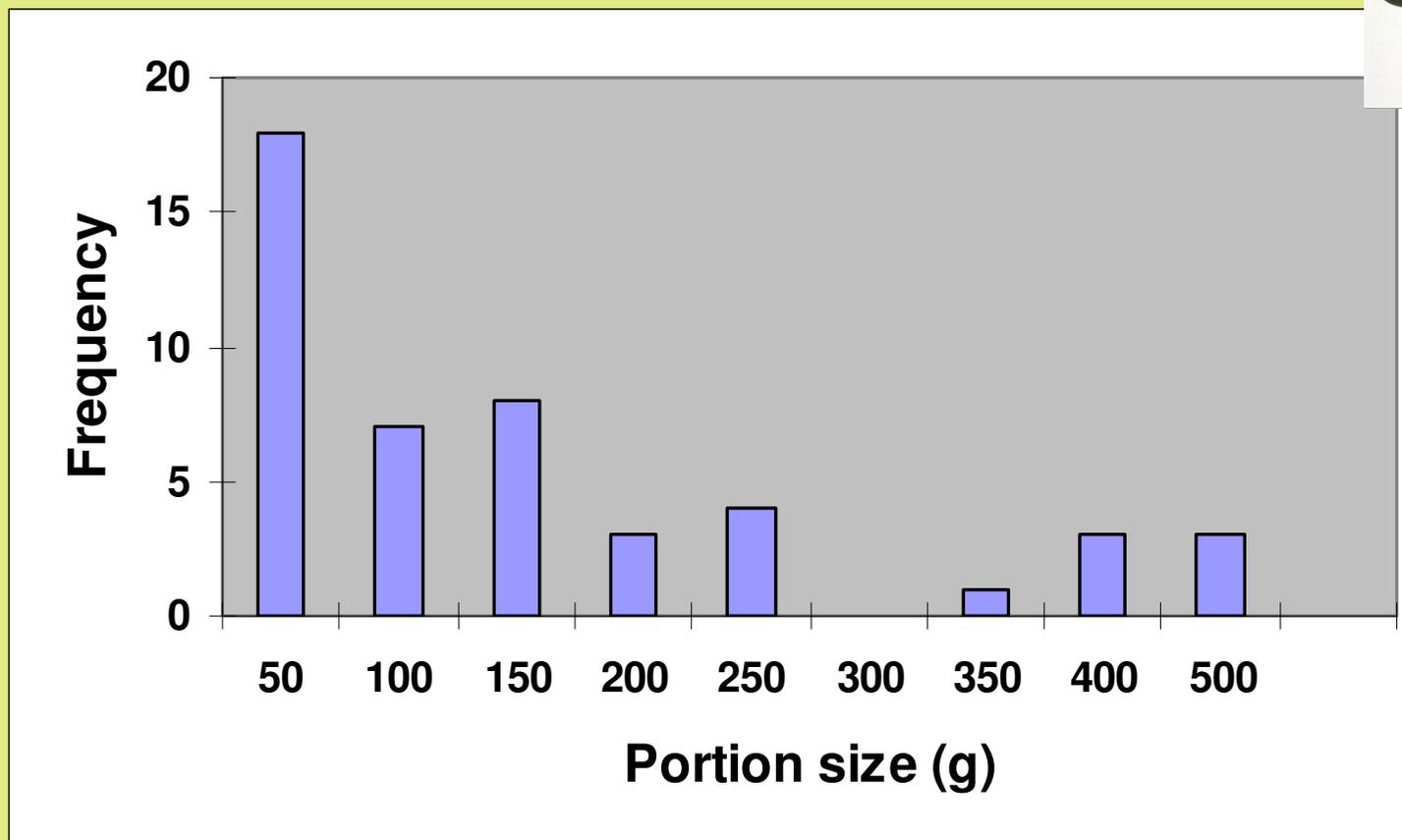
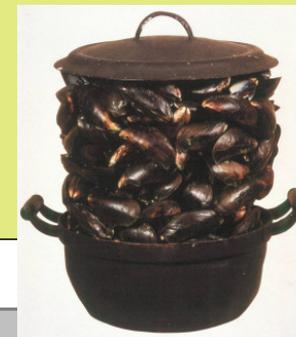
What is the appropriate portion size?



Shellfish consumption in France, Italy, The Netherlands, the UK, and Germany, based on national food consumption surveys (EFSA, 2007)

Country	Study	Number of consumers N (%)	Number of eating occasions for consumers/year	Mean portion weight (g)	95th percentile	Maximum portion weight (g)	Maximum frequency
France (7 days)	INCA 1999	(11%)	NA	10			NA
France (FFQ)	CALIPSO (bivalve molluscs)	962/997 (96%)	NA	32	94	415	NA
France (FFQ)	CALIPSO (mussels)	862/997 (86%)	NA	22	70	245	NA
Italy (7 days)	INN-CA 1994-96	212/1,981 (11%)	47	83		1,000	4/week
Germany (7 days)	NVS 1985-88	150/23,239 (0.6%)	171	107	400	1,500	3/week
UK (7 days)	NDNS 2000-01	212/1,631 (13%)	51	114		239	4/week
The Netherlands (2 days)	DNFCS 1997-98	47/4,285 (1.1%)	39	136	465	480	NA

Mussel consumption in The Netherlands



Categorisation of fish and seafood in concise database

11A Seafood and seafood products

Oysters, snails, jelly, fish, squid, caviar, nuggets of shrimp/calamari, tarama, fish eggs

11B Fish and fish products

Surimi/sea sticks (crab fish), finger fish, battered fish

Seafood consumption data in the Consolidated Database

	Survey (days)	Number	Mean (g)	95%tile (g)	97.5%tile (g)	99%tile (g)
France	7	353/1195	16	39	46	79
Italy	7	77/1544	33	103	140	158
Belgium	2	25/1723	25	60	60	60
NL	2	231/4285	31	120	180	240
DK	7	1706/3150	5	18	24	36
GER	28	237/3550	7	36	75	107
ICE	1	110/1075	43	200	288	385
NOR	?	2243/2321	51	133	166	232
SLO	1	13/2208	107	150	150	150
SWE	7	604/1088	17	50	58	69
UK	7	323/1724	14	37	46	60

SAFE FOODS



Goal: Use of food consumption databases in harmonised Pan-European risk assessment

Tool: E-platform of national consumption and residue databases (NL, It, Swe, DK, CZ)

- databases on local servers connected to probabilistic software
- up to date data
- harmonisation of food coding



EFCOVAL aims to further develop and validate a trans-European food consumption method to be used for estimating the intake of foods, nutrients and potentially hazardous chemicals within the European population.

- To upgrade and extend the computerized 24h dietary recall program EPIC-SOFT to be suitable for dietary monitoring on a European scale.
- To expand the upgraded software program to younger age groups.

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- **Data on raw agricultural products and marketed food products (or conversion model).**

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- **Better data on infrequently consumed foods.**

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- **Disaggregated consumption data for various food categories.**
- **Data on raw agricultural products and marketed food products (or conversion model).**
- **Better data on infrequently consumed foods.**
- **Data on specific target groups (e.g. young children, immigrants).**

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- **Disaggregated consumption data for various food categories.**
- **Data on raw agricultural products and marketed food products (or conversion model).**
- **Better data on infrequently consumed foods.**
- **Data on specific target groups (e.g. young children, immigrants).**

- **Strengthen collaboration with other international activities aiming at setting up a Pan-European consumption database.**

I would like to thank my “sparring” partners
Martine Bakker (RIVM) and Polly Boon (RIKILT).

**Thank you for
your attention**