Die Salzzufuhr und Jodversorgung im europäischen Vergleich

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IODINE globalnetwork: IGN

Established in 1986,
the Iodine Global Network is a non-profit,
non-government organization for
the sustainable elimination
of iodine deficiency worldwide.

Commemorating 30 Years

Since the ICCIDD (now IGN) was founded thirty years ago, we have grown into a global network hundreds strong, and iodine deficiency has plummeted globally.

IGN formerly ICCIDD International Council for the Control of Iodine Deficiency Disorders

A Global Coalition

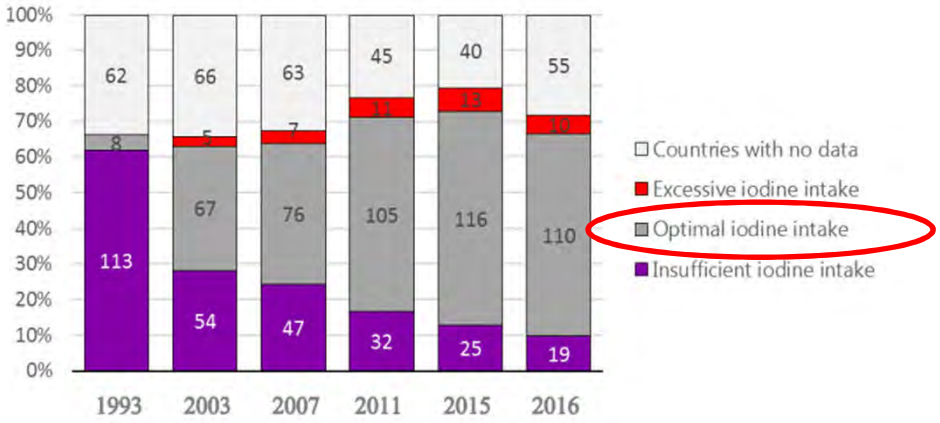
Our growth and results are the direct consequence of the contribution of partners and collaborators, some of which include:

Our Progress: The Dramatic Decline of Iodine Deficiency

Thanks to concerted global efforts, the number of iodine deficient countries has declined dramatically over the past twenty-five years. **At the end of 2016, only 19 countries were classified as iodine deficient, down from 113 in 1993.**

Recent modelling exercises have estimated that **more than 750 million cases of goiter have been prevented due to Universal Salt Iodization programs**, a result which has been seen across all regions of the world. Over the same period, millions of children have been born protected from preventable brain damage resulting from iodine deficiency, enabling them to reach their full development potential.

Figure 1. Trends in the global status of iodine nutrition between 1993 - present



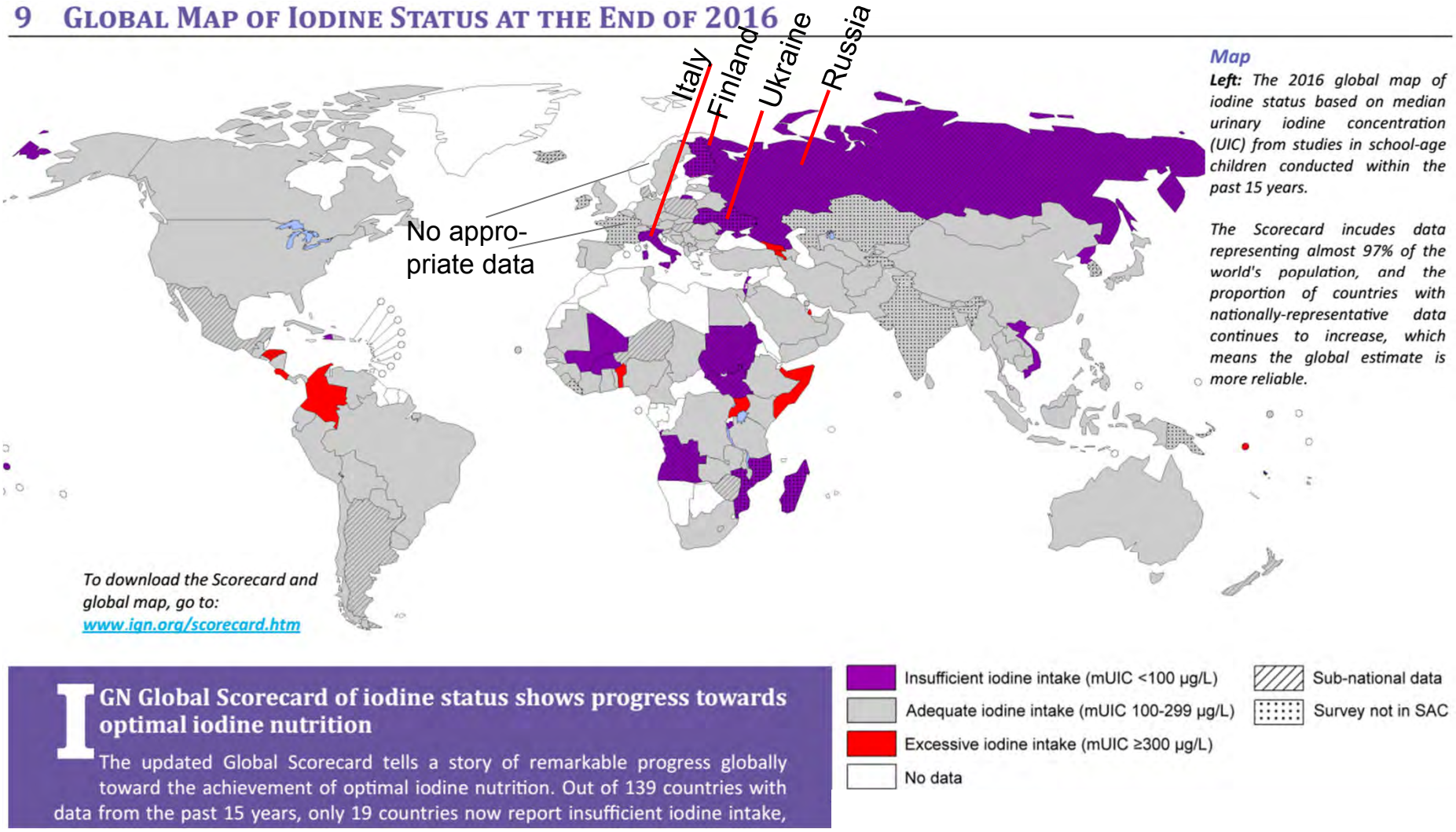
Elimination des Jod-mangels weltweit

Da Nang via Flickr; CC-B

Salt production in Pakistan

Advocacy is a hallmark of our work and is essential to generate the political will and commitment to support IDD elimination programs. We work closely with major international agencies, including UNICEF and WHO, to disseminate critical information on the importance of IDD

2016: Jodstatus weltweit (Datengrundlage Jodkonzentr.-Messungen in Spontanurinen von 6-12jährigen Schulkindern



Iodine intake in some european countries

Global Iodine Nutrition Scorecard 2012 WHO

country	UIE µg/L	% <100 µg/L	Iodine intake	Iodine status
Austria	191	21.4	sufficient	Optimal
Denmark *	101	48.1	sufficient	optimal
Finnland	83	75	insufficient	mild deficiency
France	136	33.2	sufficient	optimal
Germany *	122	38.8	sufficient	optimal
Greece	202	0	high	mild risk
Italy	96	50.2	insufficient	mild deficiency
Netherlands	154	30.9	sufficient	optimal
Poland *	112	55.2	sufficient	optimal
Spain	117	38.4	sufficient	optimal
Sweden	125	30	sufficient	optimal
Switzerland	120	36	sufficient	optimal
Hungary	80	57.2	insufficient	mild deficiency
United Kingdom	80	68.8	insufficient	mild deficiency

* epimemiological survey

Epidemiologische Kriterien zur Ermittlung der Jodversorgung: Jodkonzentrationsmessung in Spontanurinen

WHO Kriterien

Mediane Jodkonz. im Urin (µg/L)	Jodstatus
<20	Schwerer Jodmangel
20-49	Moderater Jodmangel
50-99	Milder Jodmangel
100-199	**Ausreichend/optimal**
200-299	Mehr als ausreichend
>300	Übermäßig, [exzessiv]

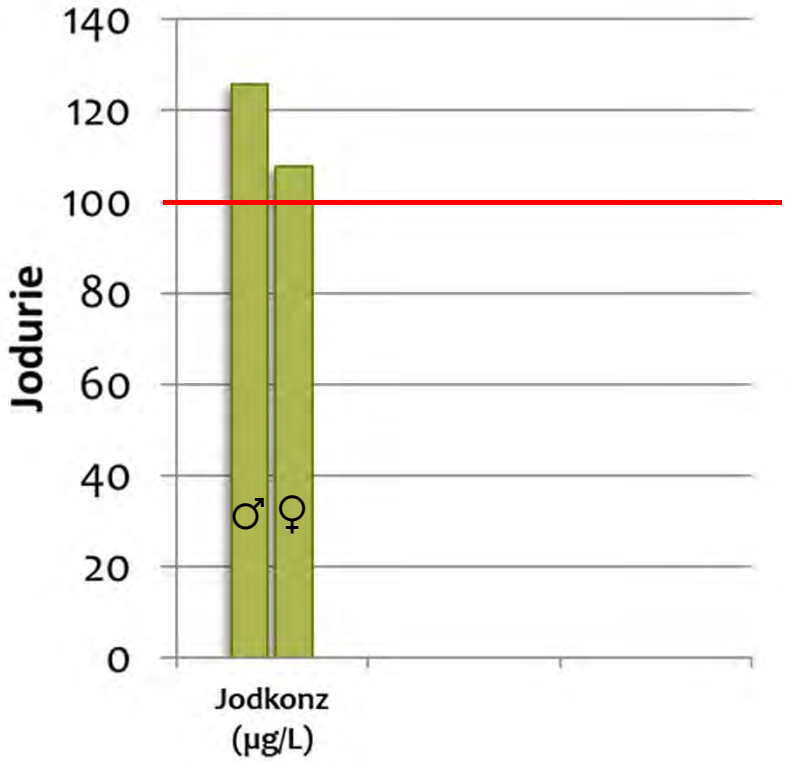
Kriterien gelten für den Median!! der gemessenen Jodkonzentration

Johner & Remer et al. 2011; British Journal of Nutrition; 106: 1749–1756

Jod-Urinkonzentrationen in den repräsentativen deutschlandweiten Studien des Robert Koch-Inst.

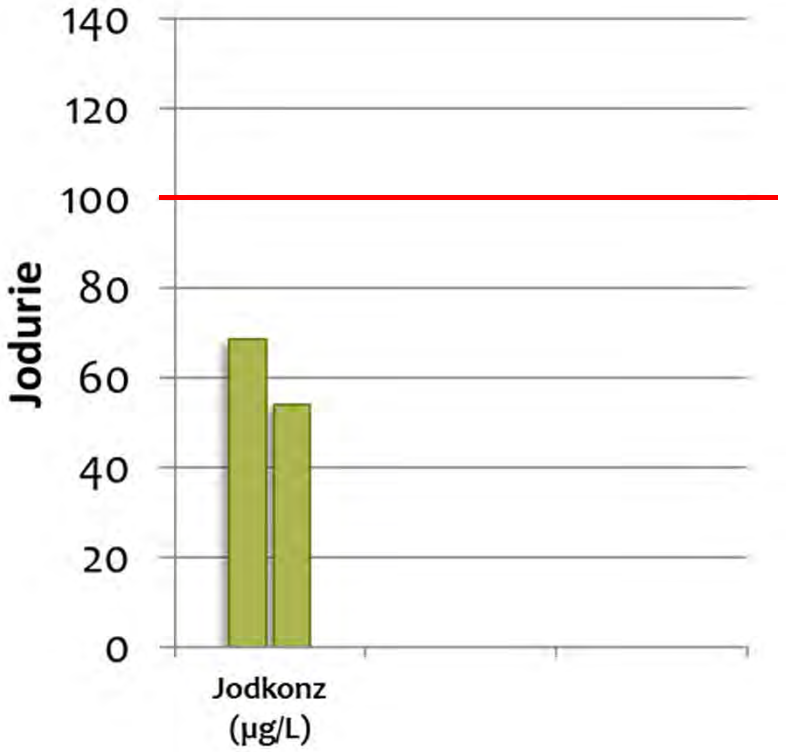
KiGGS 2003 – 2006

Studie zur Gesundheit von Kindern und Jugendlichen in Deutschland



DEGS 2008 – 2011

Studie zur Gesundheit Erwachsener in Deutschland



Johner, Thamm, Schmitz, Remer. Eur J Nutr 2016

Jod-Urinkonzentrationen in den repräsentativen deutschlandweiten Studien des Robert Koch-Inst.

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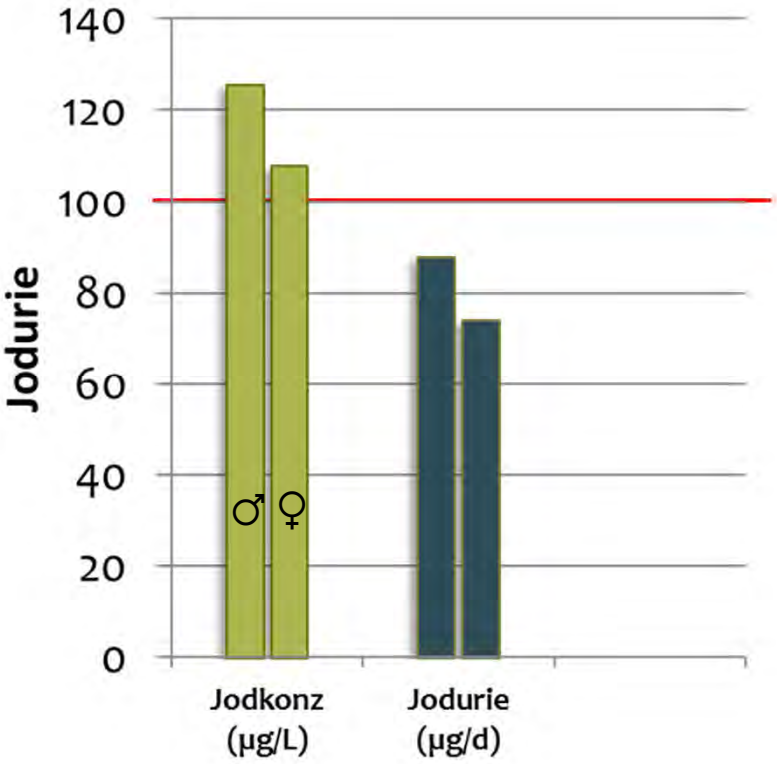

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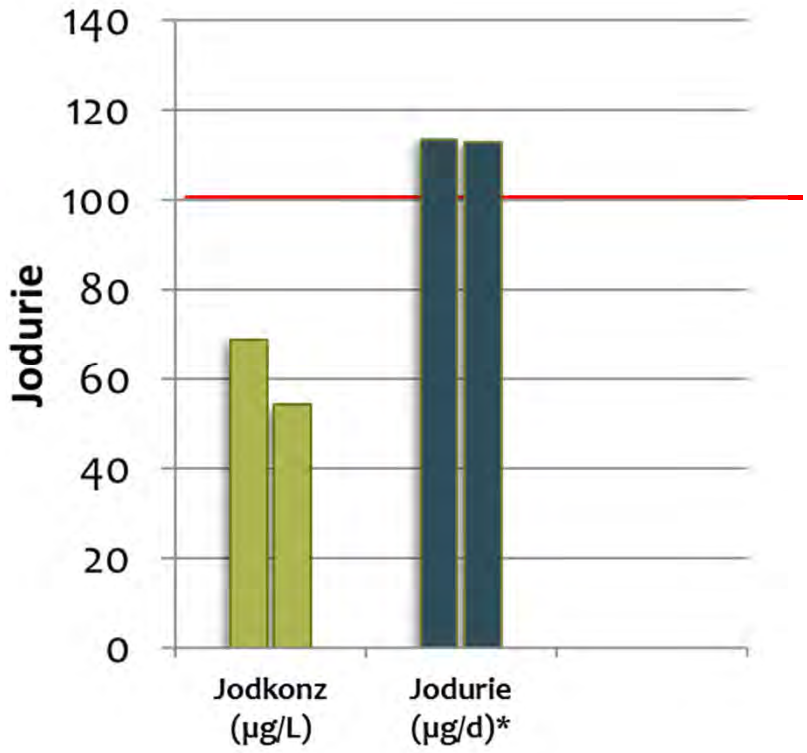
Studie zur Gesundheit Erwachsener in Deutschland



Johner, Thamm, Schmitz, Remer. Eur J Nutr 2016

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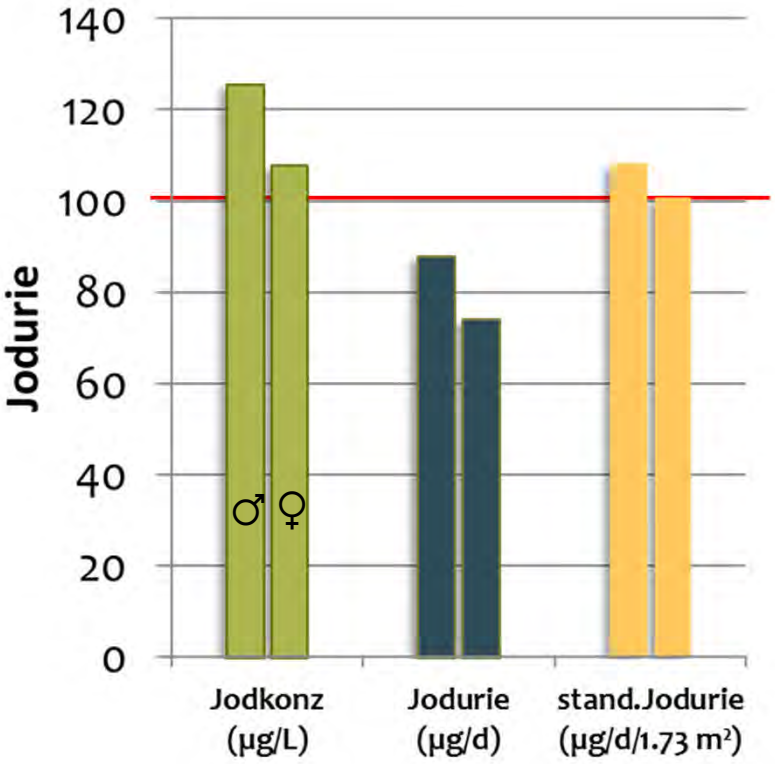
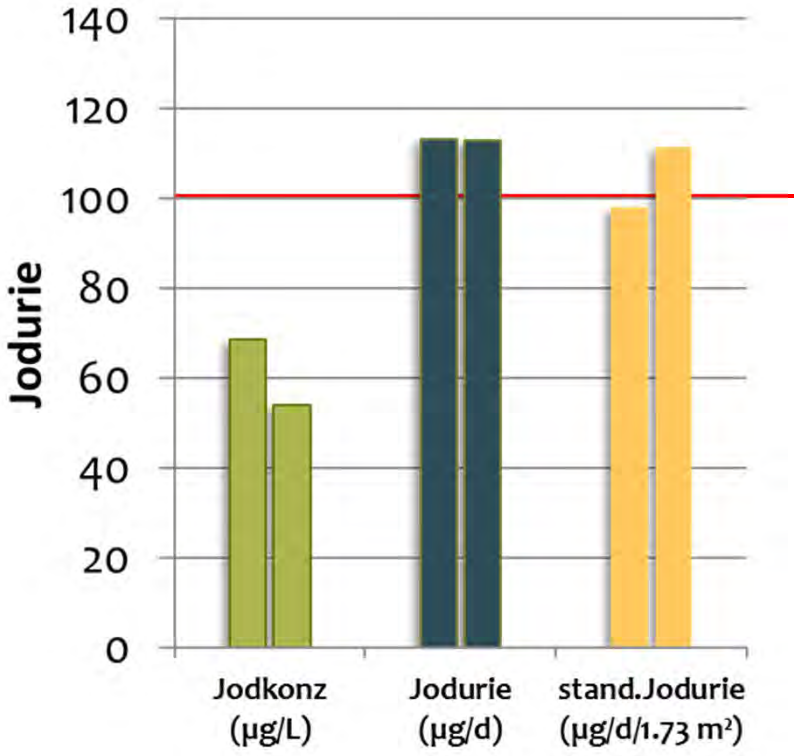


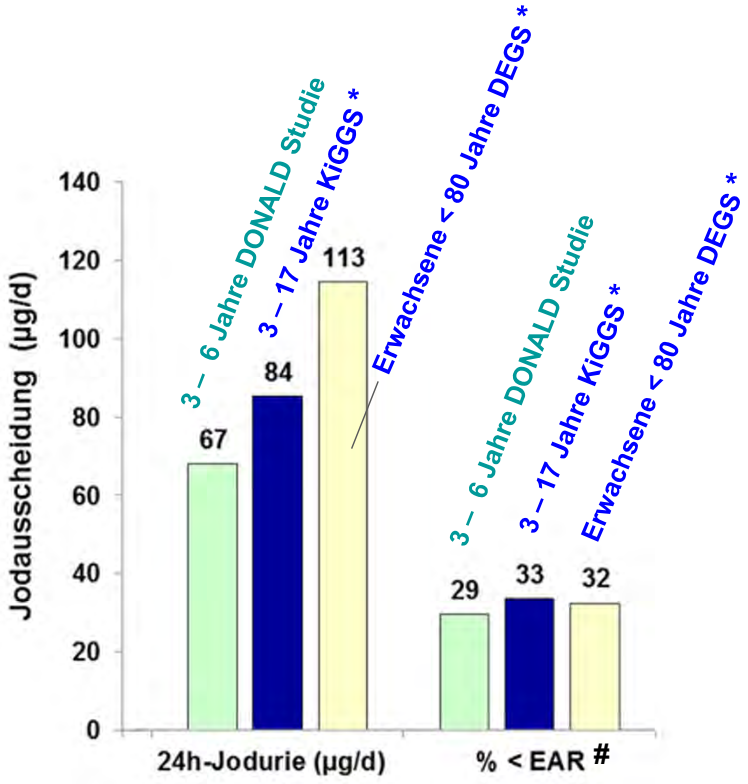
DEGS 2008 – 2011

Studie zur Gesundheit Erwachsener in Deutschland



Johner, Thamm, Schmitz, Remer. Eur J Nutr 2016

Jodversorgung in Deutschland



* Repräsentative deutschlandweite Studien des Robert Koch-Instituts

Anteil Erwachsene unterhalb des EAR
EAR = Estimated Average Requirement

Altersgruppe	Männer (%)	Frauen (%)
18-29	35.5	**46.8**
30-39	29.5	**38.9**
40-49	36.2	30.4
50-59	31.8	26.3
60-69	23.9	28.9
70-79	28.1	27.0

DEGS
Studie zur Gesundheit Erwachsener in Deutschland

➡ Ca. 30 % der Kinder, Jugendlichen u. Erwachsenen in Deutschland liegen unterhalb Ihres jeweiligen altersmäßigen Bedarfs

Johner, Thamm, Schmitz, Remer. Eur J Nutr 2016

ICCIDD GLOBAL NETWORK

IDD NEWSLETTER

VOLUME 41 NUMBER 2 MAY 2013

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In the UK and Australia, poor iodine intake in pregnancy predicts lower child IQ

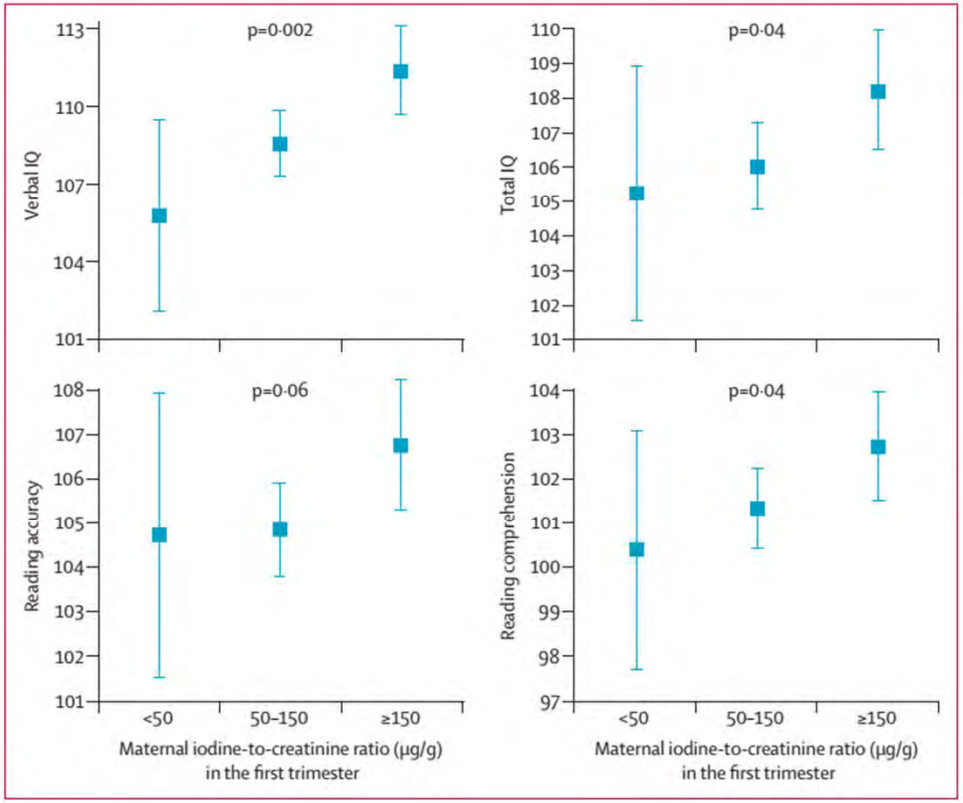
Iodine deficiency early in life is a major cause of preventable mental impairment worldwide. Every year, in developing countries, 38 million newborns are born iodine deficient. But newborns in industrialized countries, such as the UK, USA, and Australia, are also vulnerable. As iodine deficiency has re-emerged in these countries, four recent reports have pointed to the perils of even mild deficiency during pregnancy.

THE INTERNATIONAL COUNCIL FOR CONTROL OF IODINE DEFICIENCY DISORDERS (ICCIDD) GLOBAL NETWORK is a nonprofit, nongovernmental organization dedicated to sustained optimal iodine nutrition and the elimination of iodine deficiency throughout the world. Its activities have been supported by the international aid programs of Australia, Canada, Netherlands, USA, and also by funds from UNICEF, the World Bank, Kiwanis and others.

Effect of inadequate iodine status in UK pregnant women on cognitive outcomes in their children: *results from the Avon Longitudinal Study of Parents and Children.*

SC Bath, et al. Lancet 2013; 382: 331-37

IQ at age 8 years

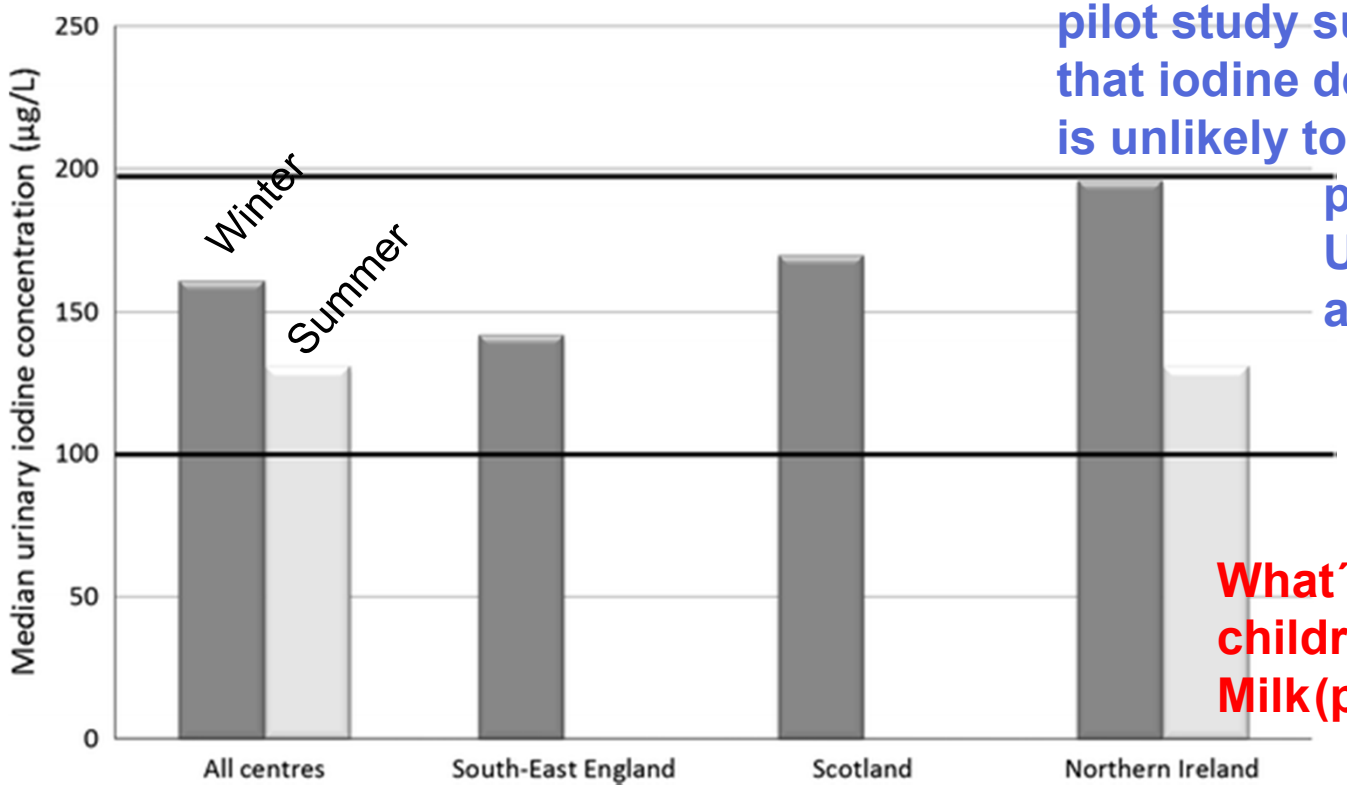


IQ at age 8 years

8-10jährige Schulkinder in UK: rekrutiert in 3 Zentren

Northern Ireland (Omagh), Scotland (Glasgow) and South-East England (Guildford)

November 2012 bis 2013 - a pilot study



CONCLUSION: This pilot study suggests that iodine deficiency is unlikely to be a problem in UK children aged 8-10 y.

What´s about children refusing Milk(products)?

A total of 168 schoolchildren provided 165 urine samples

Bath & Zimmermann et al. Eur J Nutr **2016**

PubMed ▷ Suchformulierung: Iodine Status Europe
Publikations-Zeitraum: 2015-2017

Schulkinder, Erwachsene

Großbritannien, UK Bath et al. Eur J Nutr 2016
Irland McNulty et al. Br J Nutr 2017
Spanien Vila et al. Brit J Nutr 2016
Portugal Santos et al. J Endocrinol Invest 2017
Schweiz Haldimann et al. Public Health 2015
Nord-Italien Watutantrige et al. Eur J Nutr 2016
Kroatien (Region Zagreb) Jukic et al. Acta Clin Croat 2015
Zypern Gaengler et al. Public Health 2017

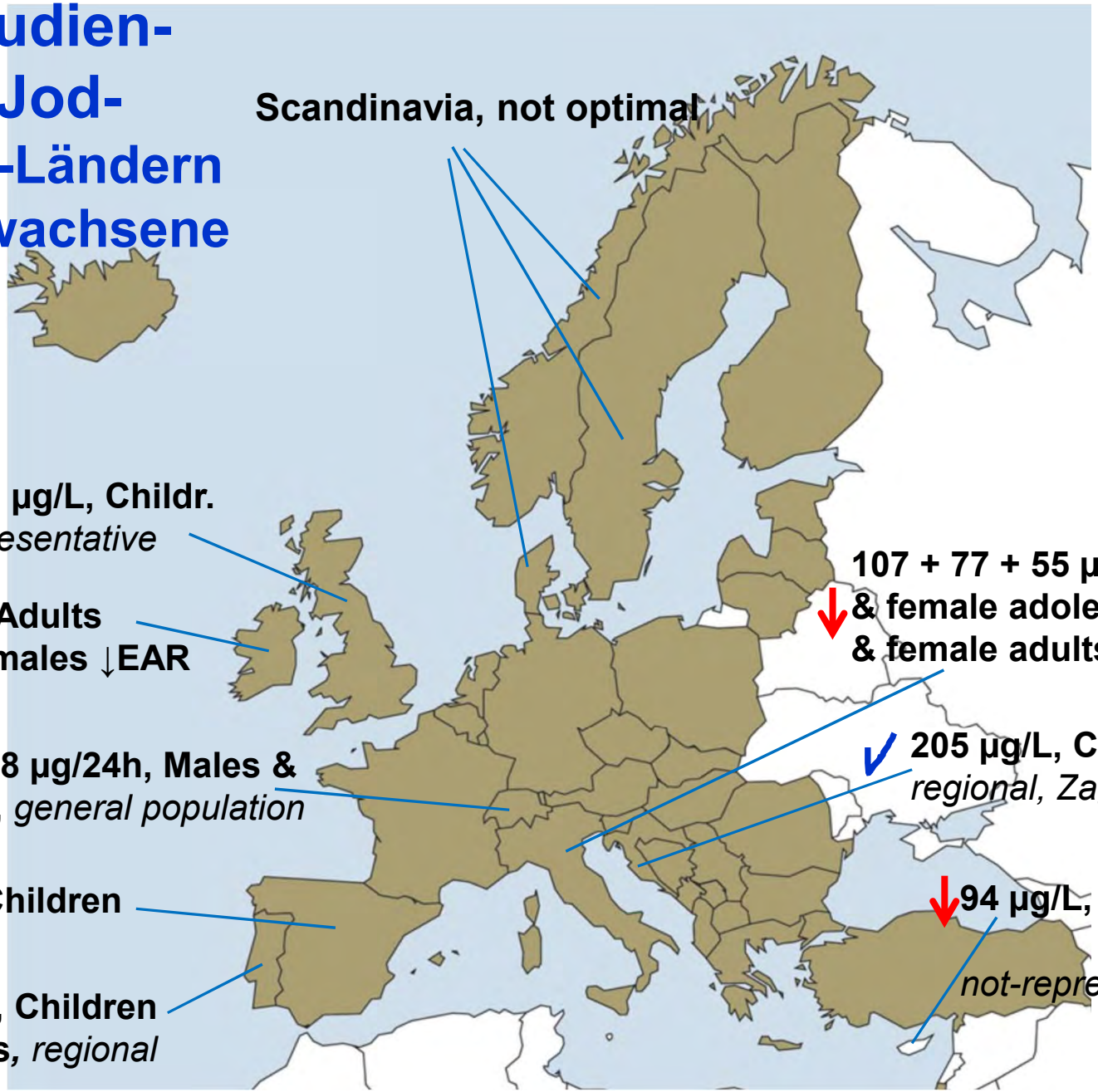
Skandinavien (Norwegen, Schweden, Dänemark) Review, allgemeine Übersicht Manousou et al. Minerva Med 2017

Schwangere Frauen

UK Bath et al. Am J Clin Nutr 2015
Schweden Granfors et al. Acta Obstet Genecol Scand 2015
Dänemark Kirkegaard-Klitbo Dan Med J 2016
Lettland Konrade et al. Public Health Nutr 2015
Österreich Lindorfer et al. Eur J Clin Nutr 2015

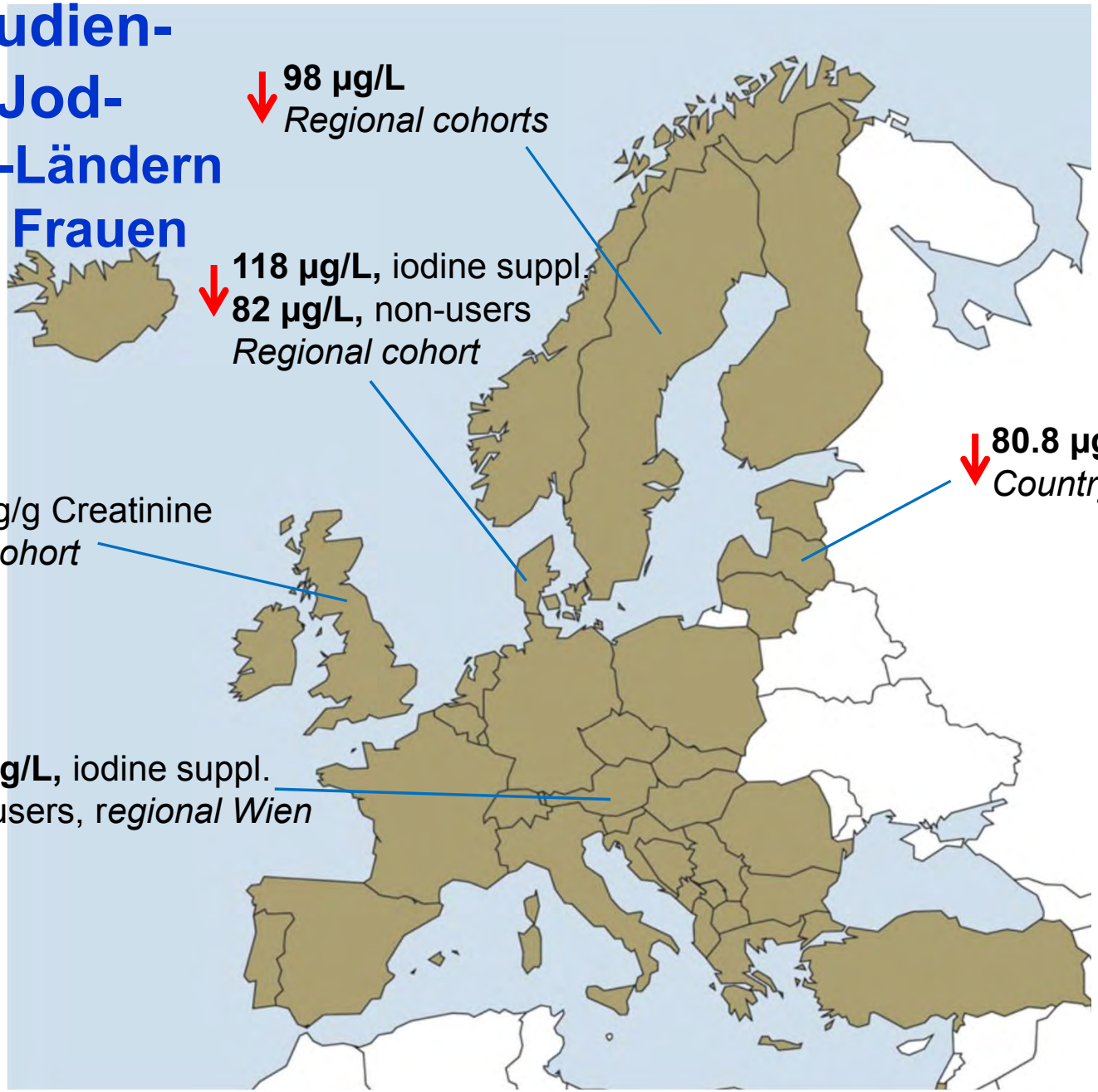
Aktuelle Studien-daten zum Jod-Status in EU-Ländern Kinder & Erwachsene

- Mediane -



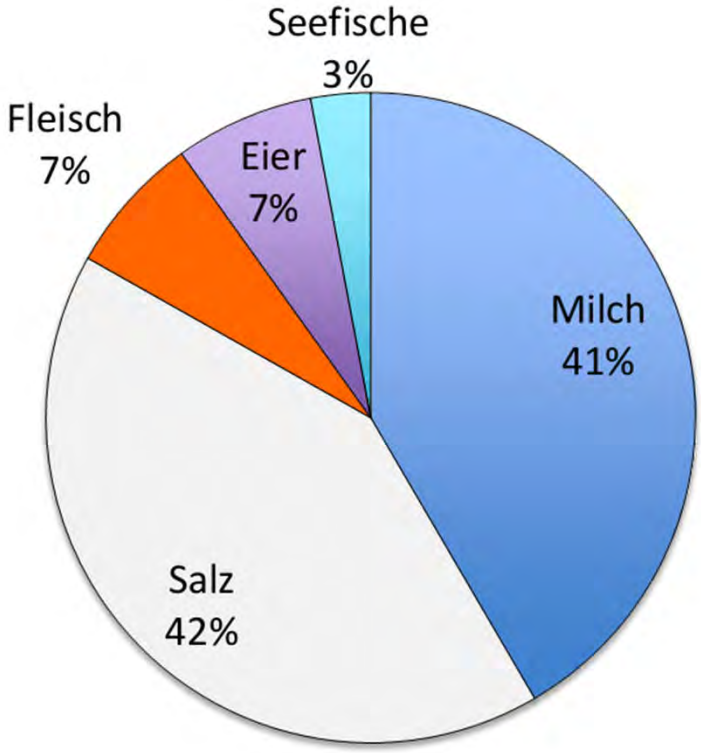
Aktuelle Studien-daten zum Jod-Status in EU-Ländern Schwangere Frauen

- Mediane -



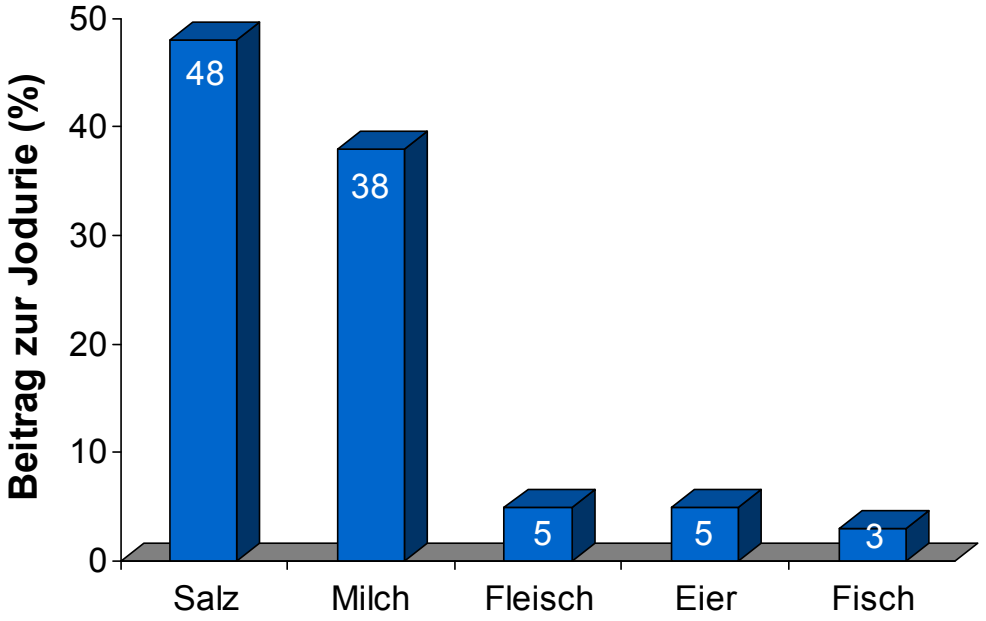
Prozentualer Beitrag verzehrter Lebensmittel(gruppen) zur Jodausscheidung im 24h-Urin von Kindern

3 bis < 6 Jahre



Johner & Remer et al. Eur J Nutr 2013

6 bis 12 Jahre

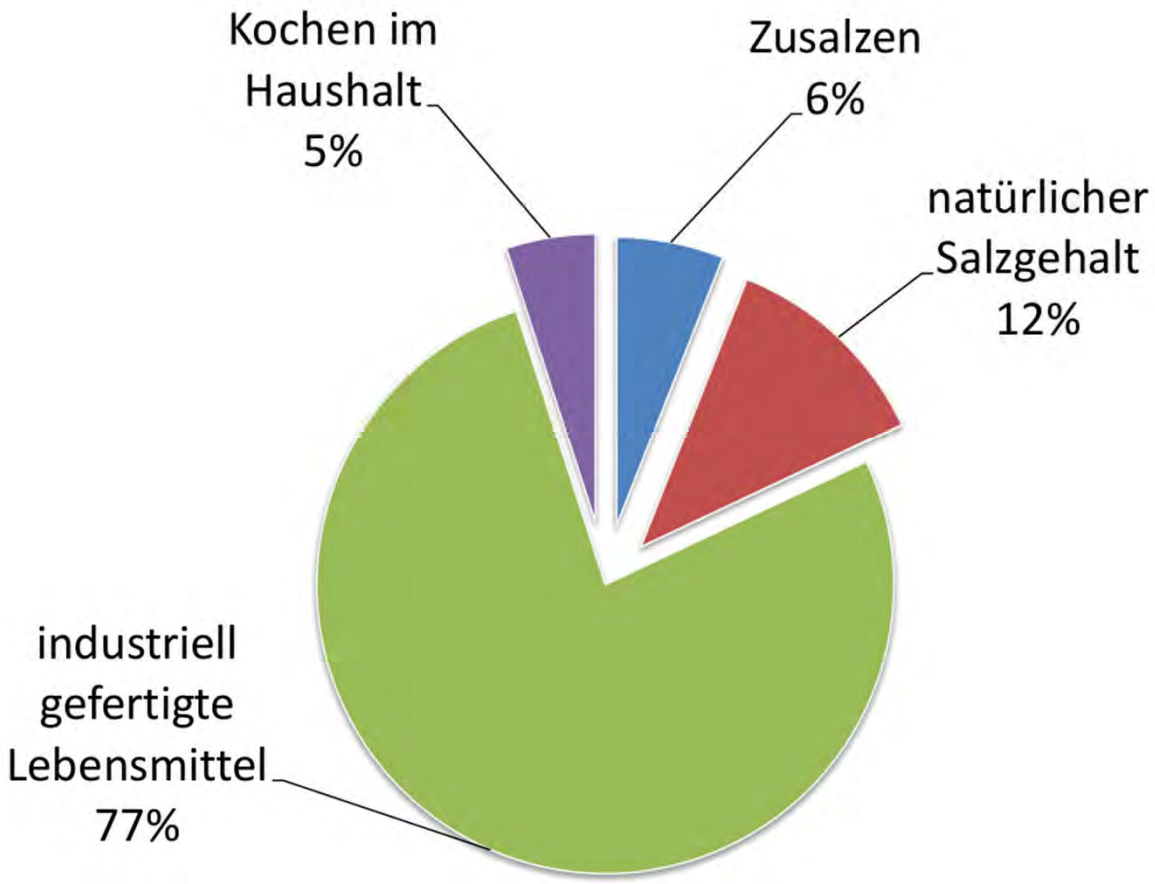


Johner, Günther & Remer. Br J Nutr 2011

Zusalzen mit jodiertem Speise(Haushalts)salz

Beitrag zur Jodversorgung - Bedeutung ?

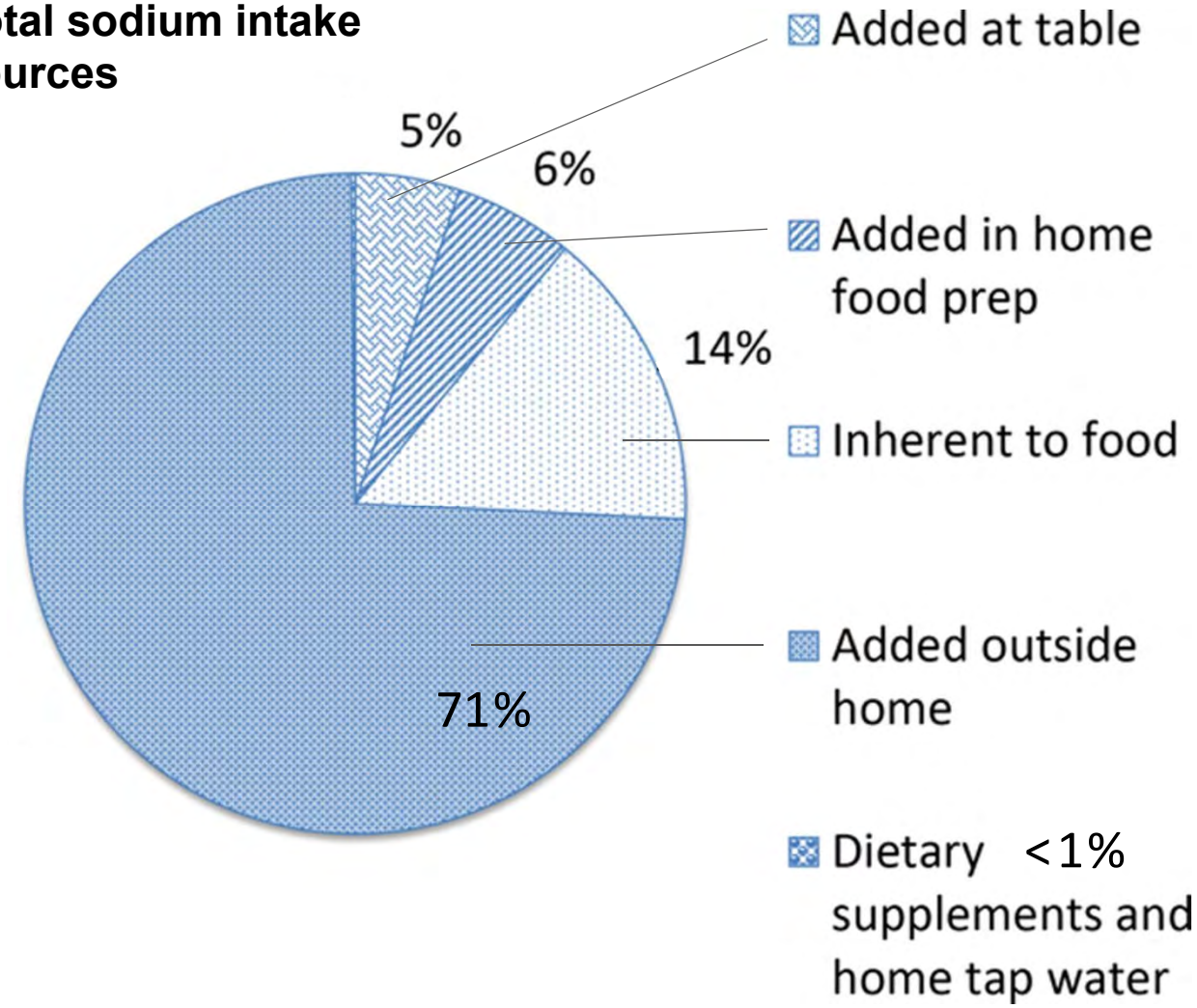
Wichtigste Quellen von Natriumchlorid in der Nahrung



Mattes & Donnelly. J Am Coll Nutr 1991

Majority of Salt Consumption Occurs Outside of Home, Study Found (*Reuters*)

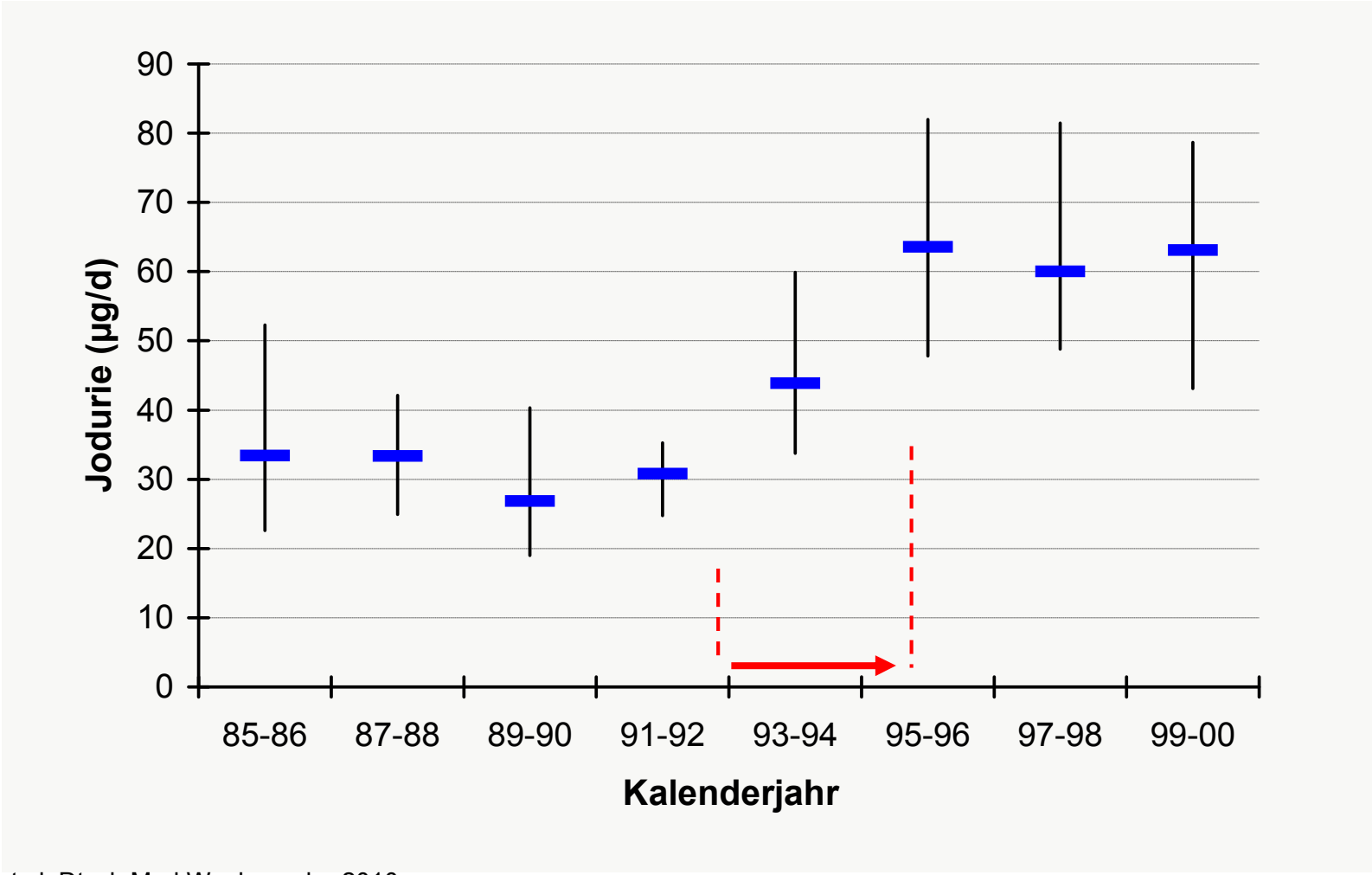
Proportion of total sodium intake from various sources (n=450).



American Heart Association. Lisa J. Harnack et al. Circulation. 2017;135:1775-1783

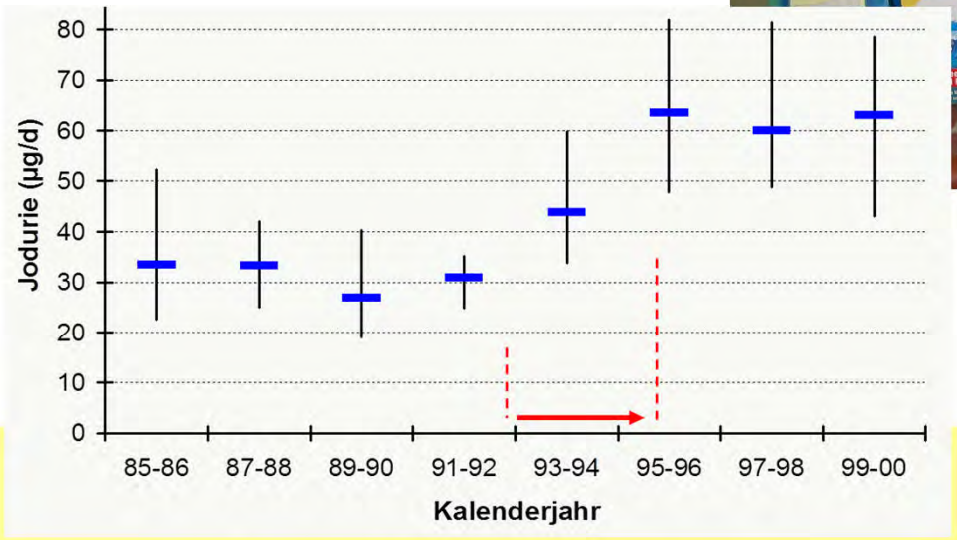
Jodausscheidung im 24-Stunden-Urin bei 7jährigen Kindern (n=257, DONALD Studie): 1985 – 2000 (Median, Interquartilbereich)

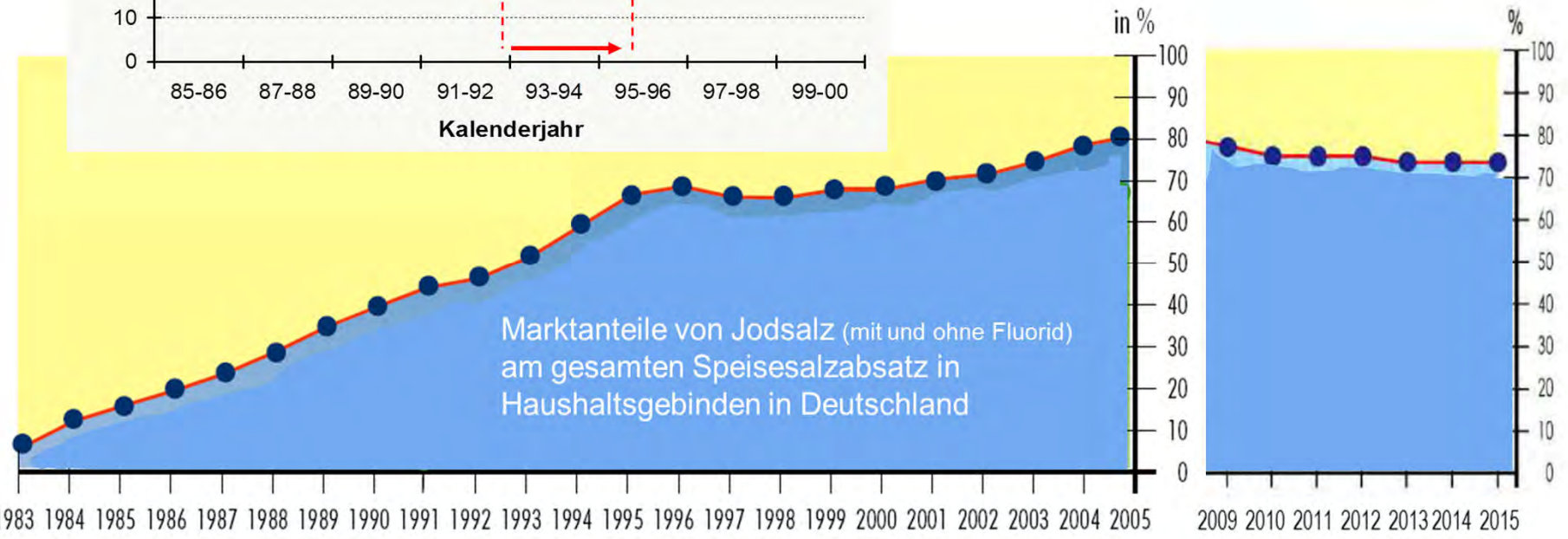
Ab 1993 deutliche Verbesserung der Jodversorgund in Deutschland



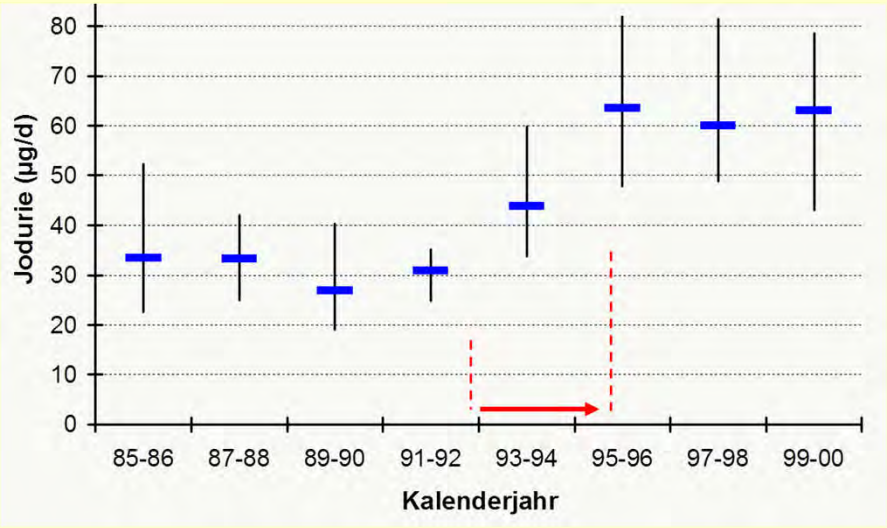
Remer et al. Dtsch Med Wochenschr 2010

Jodiertes Speissalz und Jodurie

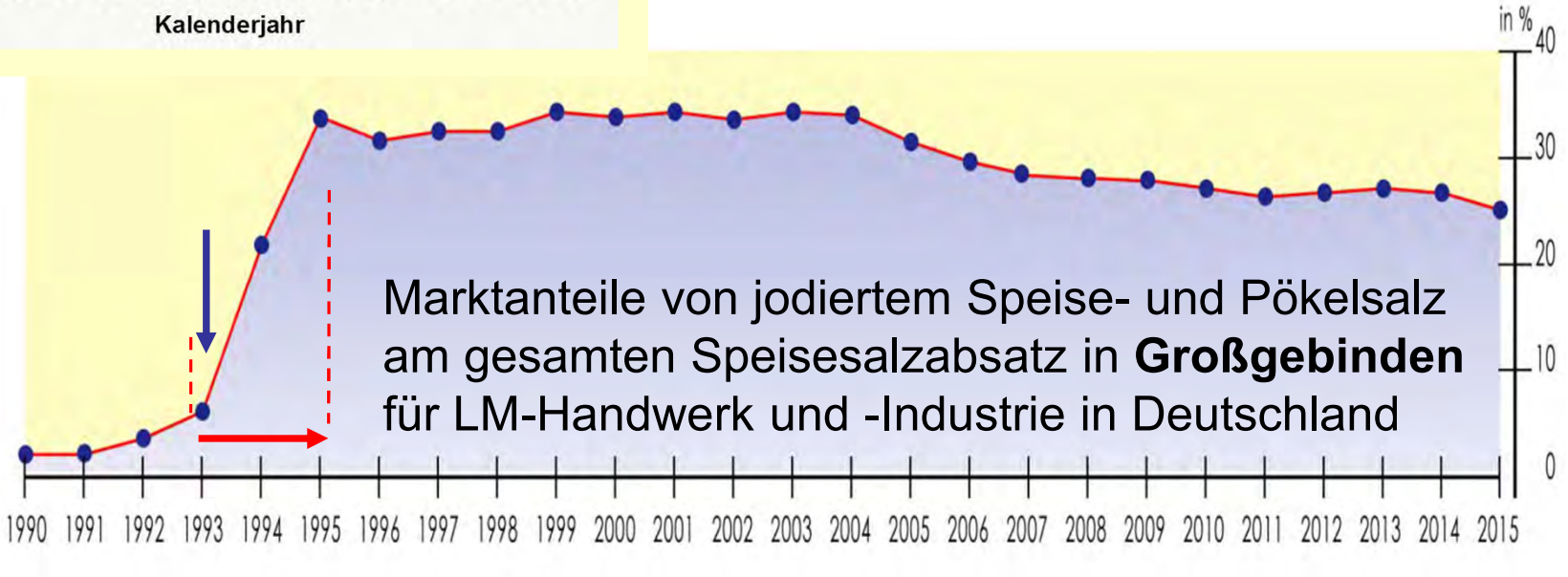




Jodiertes Speissalz und Jodurie



1993: Wegfall der **Doppeldeklarations-Pflicht** für industriell gefertigte Lebensmittel bzw. der Kennzeichnungs-Pflicht für lose verkaufte Back-, Fleisch- und Wurstwaren bei Verwendung von jodiertem Speisesalz



Marktanteile von jodiertem Speise- und Pökelsalz am gesamten Speisesalzabsatz in **Großgebinden** für LM-Handwerk und -Industrie in Deutschland

Eur J Nutr
DOI 10.1007/s00394-014-0787-8

ORIGINAL CONTRIBUTION

Current daily salt intake in Germany: biomarker-based analysis of the representative DEGS study

S. A. Johner · M. Thamm · R. Schmitz · T. Remer

Received: 27 June 2014 / Accepted: 13 October 2014
© Springer-Verlag Berlin Heidelberg 2014

Percentage of DEGS participants with an daily salt intake of >5g, >6g, >10g, & >15g

Age	Women **8.4 g/d** (Median)				Men **10.0 g/d** (Median)			
	>5 g/day	>6 g/day	>10 g/day	>15 g/day	>5 g/day	>6 g/day	>10 g/day	>15 g/day
18–29	73.9	63.0	29.7	10.7	87.0	78.5	47.2	25.0
30–39	78.4	68.7	34.6	13.5	87.0	81.9	54.6	26.9
40–49	80.3	74.1	43.8	19.9	84.5	77.7	45.7	17.8
50–59	77.8	72.2	45.0	16.1	86.2	80.8	53.4	25.1
60–69	75.2	69.1	37.1	14.0	85.6	79.2	52.0	23.9
70–79	77.0	68.6	39.9	15.3	86.9	79.5	48.9	22.1
Total	77.2	69.5	38.6	15.1	86.1	79.5	50.0	23.2

◁ WHO ▷

Population nutrition goal:

➤ 5 grams per day

PubMed ▷ Suchformulierung: Salt-intake Europe
Publikations-Zeitraum: 2015-2017

Dänemark, Region Kopenhagen Thuessen et al. Eur J Prev Cardiol. 2015

Griechenland, Region Thessaloniki Vasara et al. Nutr 2017

Spanien, verschiedene Provinzen,
Kinder, nicht-repräsentative Gruppen Aparicio et al. Eur J Nutr. 2017

Italien, Nationaler Survey Cappuccio et al. BMJ Open. 2015

Tenor/Conclusion:

Sodium intake is - on average - higher than recommended.

Salzaufnahme in verschiedenen europäischen Ländern und Salzreduktions-Szenarien (vor 2015 publiziert)

PLOS ONE | Health Gain by Salt Reduction in Europe

Table 1. Current salt intake and salt intake in the salt reduction scenarios for the nine countries.

Country	Year	Current salt intake (g/d)		30% salt reduction on population level (g/d)		Salt intake of 5 g/d for all individuals	
		Mean (SD) Men	Mean (SD) Women	Mean reduction Men	Mean reduction Women	Mean reduction Men	Mean reduction Women
Finland	2002 [8]	9.4 (4.0)	7.3 (2.9)	-2.8	-2.2	-4.4	-2.3
France*	2006–2007 [35]	11.0 (2.8)	8.0 (2.0)	-3.3	-2.4	-6.0	-3.0
Ireland*	2008–2010 [36]	10.4 (2.4)	7.6 (1.8)	-3.1	-2.3	-5.4	-2.6
Italy	2008[37]	11.0 (4.0)	8.6 (3.3)	-3.3	-2.6	-6.0	-3.6
Netherlands	2010 [38]	10.9 (3.9)	7.8 (2.7)	-3.4	-2.3	-5.9	-2.8
Poland	2009 [39]	13.3 (4.0)	10.0 (3.1)	-4.0	-3.0	-8.3	-5.0
Spain	2009 [40]	11.5 (4.8)	8.4 (3.9)	-3.4	-2.5	-6.5	-3.4
Sweden*	2010–2011 [41]	11.4 (2.9)	8.7 (2.1)	-3.4	-2.6	-6.4	-3.7
UK	2008 [42]	9.7 (4.1)	7.7 (4.8)	-2.9	-2.3	-4.7	-2.7

* Salt intake is estimated based on salt intake from food records and includes an estimation of discretionary salt use of 20%.

Hendriksen et al. PLOS ONE 2015

Systematisches Cochrane Review 2017

Gesetz-geberisch (mit)getragene Interventionen zu Salz reduktions-maßnahmen auf Populations-Niveau

Table 3. Mean change in salt intake (g/day) from before to after intervention overall, and by the subset of multicomponent initiatives that incorporate structural activities

Country	Year of post-intervention data point	Post-intervention salt intake: mean, SD, *n*	Year of pre-intervention data point	Pre-intervention salt intake: mean, SD, *n*	Effect estimate: salt intake: mean (95% CI)
Austria[a]	2012	8.15 g/day, SD = 2.99 380	2008	8.3 g/day, SD = 3.53 2123	−0.15 g/day (−0.49, 0.19)
Canada	2004	7.77 g/day, SD = 1.54 10499	1970–72	6.11 g/day, SD = 3.46 4540	1.66 g/day (1.56, 1.76)[c]
China	2009	11.49 g/day, SD = 6.6 6932	2006	12.7 g/day, SD = 7.11 6826	−0.76 g/day (−0.99, −0.53)[b]
Finland (Kuopio area)[a]	1987	10.63 g/day, SD = 4.1 400	1979	11.78 g/day, SD = 4.72 670	−1.15 g/day (−1.69, −0.61)[b]
France[a]	2006–07	7.54 g/day, SD = 2.34 1922	1998–99	8.0 g/day, SD = 2.58 1345	−0.46 g/day (−0.63, −0.29)[b]
Ireland[a]	2007	7.85 g/day, SD = 3.7 9172	2002	8.2 g/day, SD = 5.9 5992	−0.35 g/day (−0.52, −0.18)[b]
The Netherlands[a]	2010	8.58 g/day, SD = 3.36 342	2006	8.58 g/day, SD = 3.19 317	0 g/day (−0.50, 0.50)
Switzerland[a]	2011	9.2 g/day, SD = 3.8 1448	1984	8.4 g/day, SD = 3.6 147	0.80 g/day (0.19, 1.41)[c]
UK-England[a]	2007	5.46 g/day, SD = 1.12 4269	2003	6.32 g/day, SD = 1.18 1668	−0.86 g/day (−0.93, −0.79)[b]
UK-whole[a]	2008	8.64 g/day, SD = 4.39 692	2000–1	9.53 g/day, SD = 4.48 1147	−0.89 g/day (−1.31, −0.47)[b]
UK-Scotland[a]	2009	6.8 g/day, SD = 4.95 1045	2003	6.8 g/day, SD = 5.19 1148	0 g/day (−0.42, 0.42)
USA	2010	8.64 g/day, SD = 5.08 525	1988–94	8.34 g/day, SD = 4.83 1249	0.30 g/day (−0.21, 0.81)

strukturierte multiple Maßnahmen (z.B. Produkt-Reformulierungen, Labeling) ➤ 4 von 7 Ländern NaCl ↓

Barberio et al. Int J Epidemiol 2017

Résumé

Die Salzzufuhr ist europaweit auf einem hohen (zu hohen) Niveau

Künftige von der Politik beförderte strukturierte Maßnahmen zur Salz-reduktion auf Populations-Ebene (z.B. Produkt-Reformulierung u. Labeling) können einen Rückgang der Salzzufuhr in der Bevölkerung bewirken

Regelmäßiges Salzzufuhr- und Jodmonitoring ist notwendig

Mediane Jodkonzentrationsmesswerte (>100 oder <100 µg/L) sind lediglich grobe Orientierungswerte u. erlauben keine Aussagen zur Gesamt-Bevölk.

Unabhängig von medianen Urin-Jodausscheidungs-Konzentrationsmess-werten > 100 µg/L ist in den meisten europäischen Ländern die Jod-versorgung in einer Reihe von Bevölkerungsgruppen **nicht ausreichend**

Insbesondere: jüngere Frauen, Schwangere, Stillende, vegetarisch/vegan-Orientierte, milchproduktarm oder -frei Ernährte sind überproportional häufig von einem Jodmangel betroffen

Vielen Dank !