



Umhvørvisgranskning tey seinastu 40 árini

Pál Weihe
yvirlækni, professari

Barnakanningar fyri umhvørvisárin síðan 1984

1. Forkanning 1984
2. Kanning av kvinnum í Leirvík fyri kvíksilvur 1985
3. Kvíksilvurkanning 1986/87 – kohorta 1
4. PCB kanning 1994 – kohorta 2
5. Kanningar í Qaanaaq, Grønlandi, 1995
6. Camera de Lobos, Madeira, 1995
7. PCB kanning 1998/2000 – kohorta 3
8. Kvíksilvurkanningar í Amazonas 1999
9. Kost kanning 2000/2001 – kohorta 4
10. Kanning 2007/2009 – kohorta 5
11. Kanning 2020/21 – kohorta 6



Granskningarøkið

- Umhvørvislæknafrøðin
- Altjóða áhugi fyri, hvussu umhvørviseitur í lágdosis ávirkar heilsuna hjá fólki
- Umhvørvisdálking og árin á fostur
- Úrslitini frá okkara fólki skulu kunna brúkast til heimliga leiðbeining og til altjóða fyriskipanir



Granskingshættir

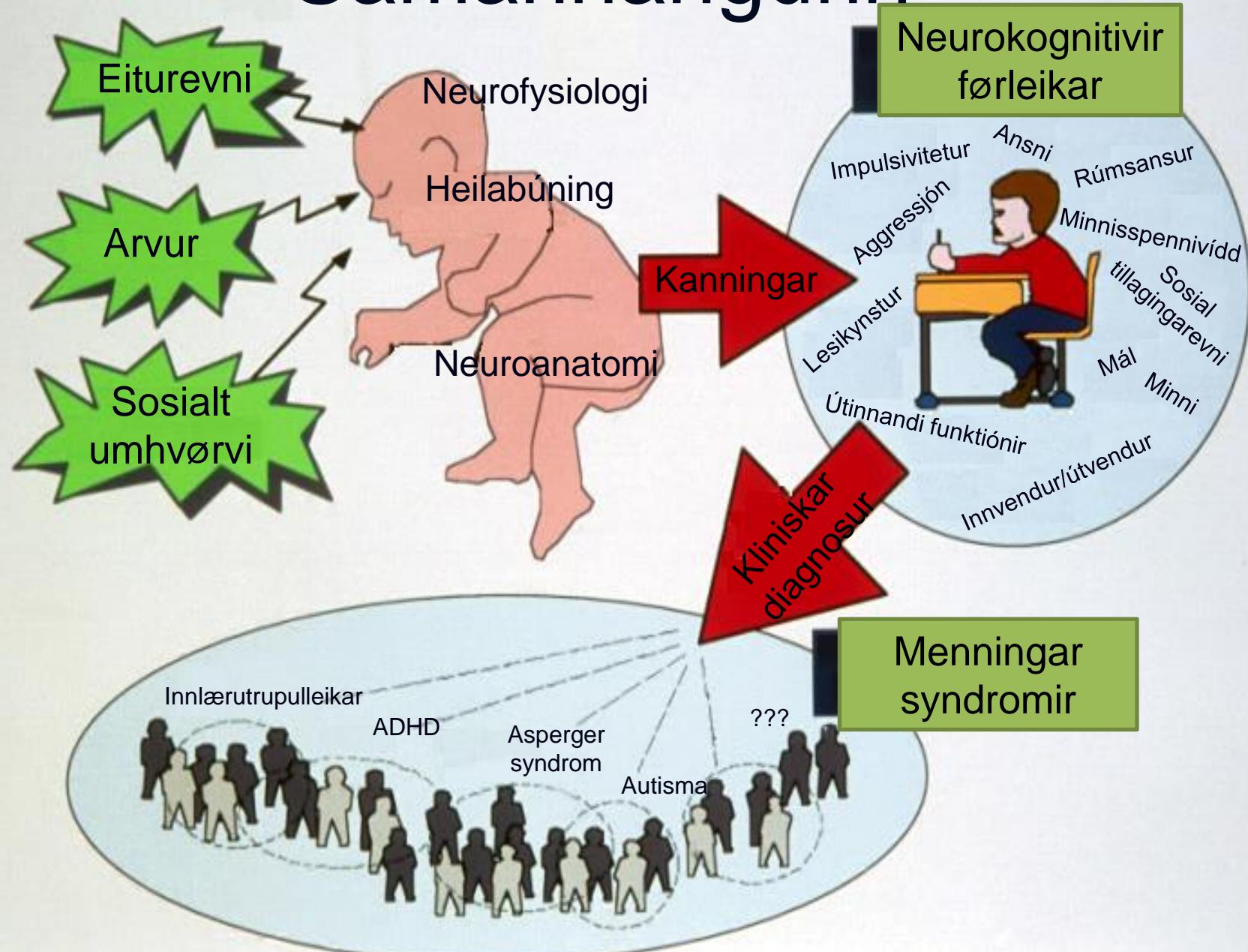
- Framlítandi - prospektivar - kohortukanningar
- Ymisk faklig háttaløg:
 - neuropsykologisk, neurologisk og neurofysiologisk
- Samstaryv við serfrøðingar úr ymiskum londum



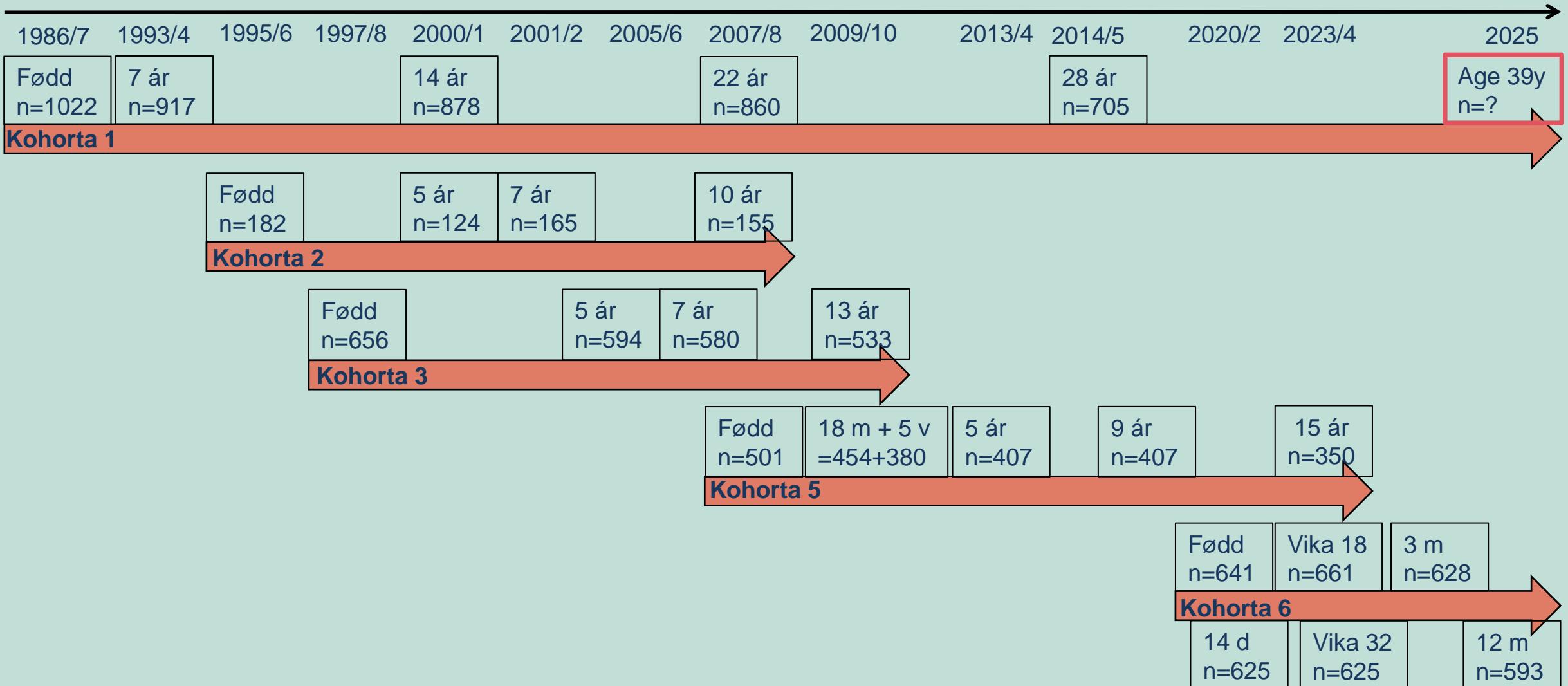
Samstarv við umheimin avgerðandi

- Miljømedicin – Syddansk Universitet
- Harvard School of Public Health
- Afdeling for Vækst og Reproduktion – RH
- Akita Universitetið í Japan
- Umhvørviskemiska deildin á Stockholms Universiteti
- University of Rhode Island
- AMAP (Arctic Monitoring and Assessment Programme)
- Altjóða fígging – í høvuðsheitum

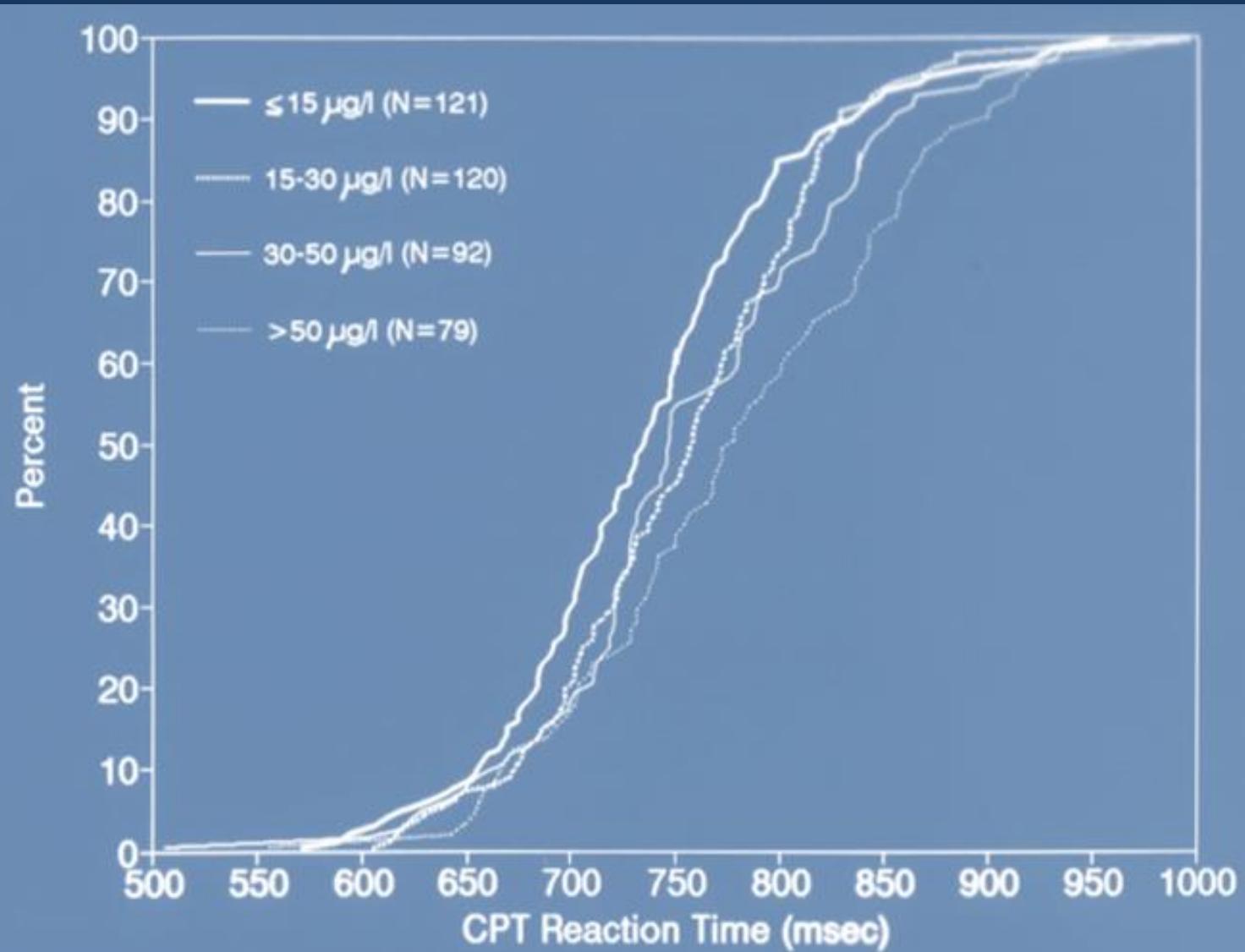
Samanhangurin

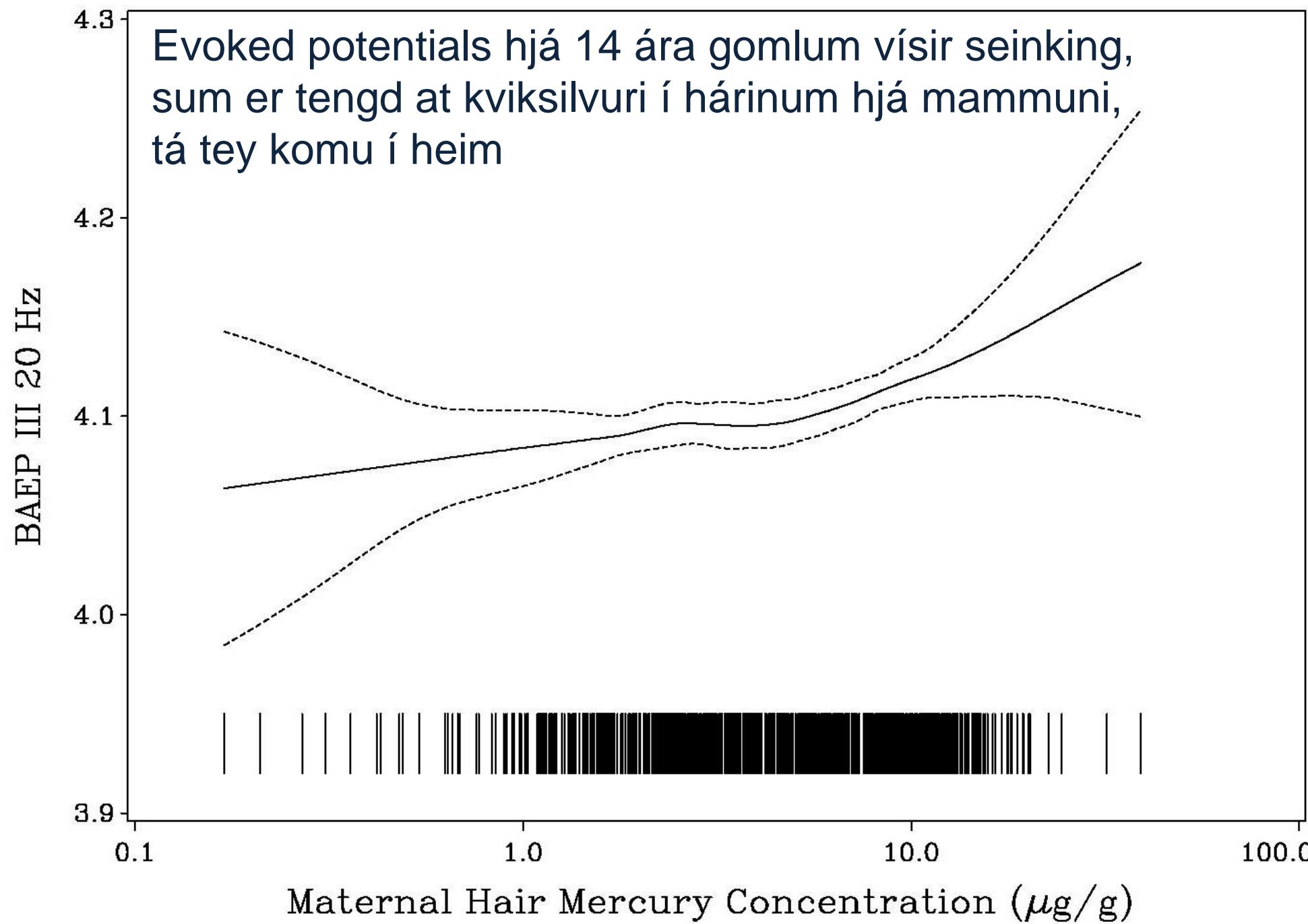


Burðarkohortnar í Føroyum

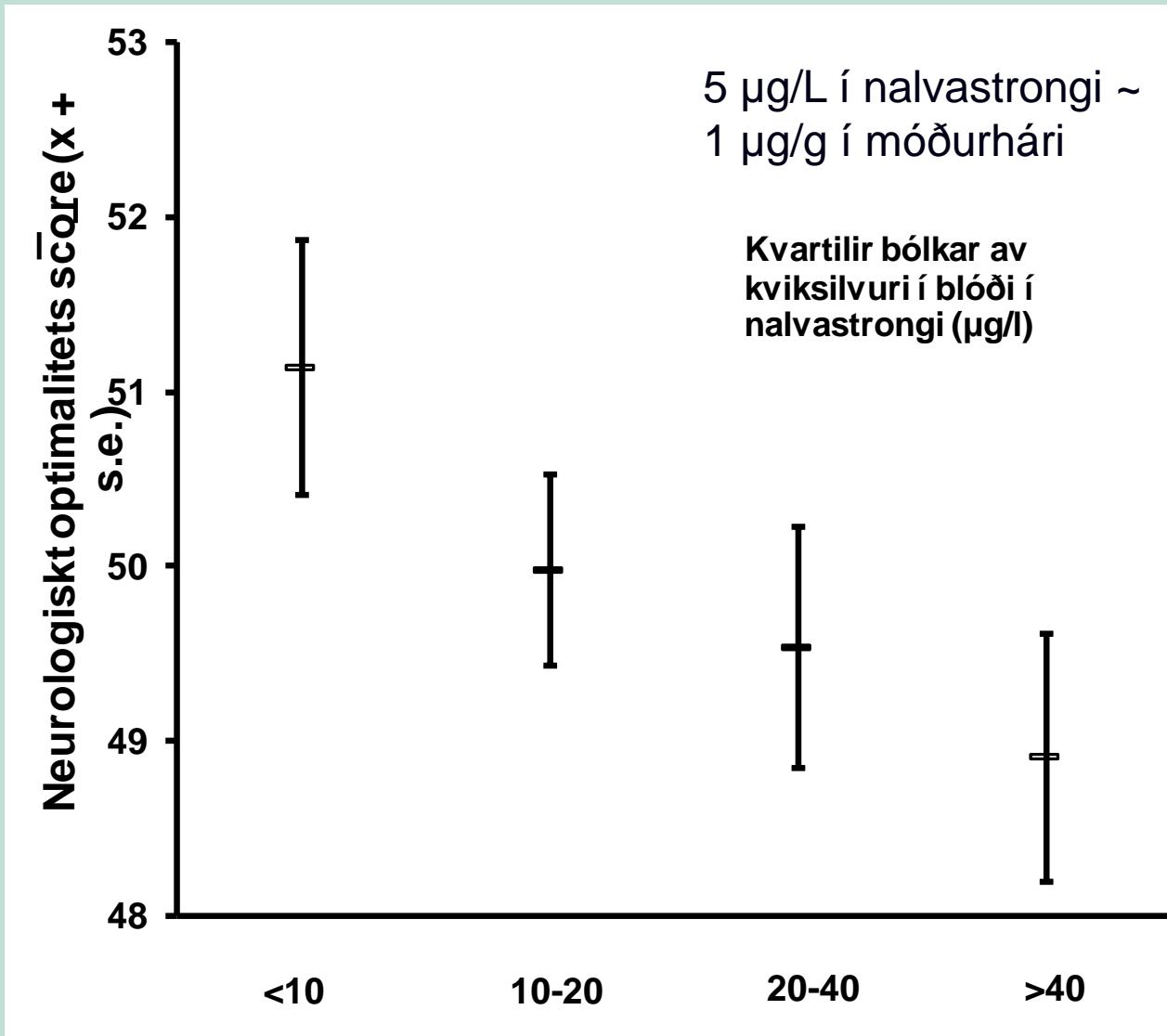


NES – Reaktíónstíð við 7 ára aldur

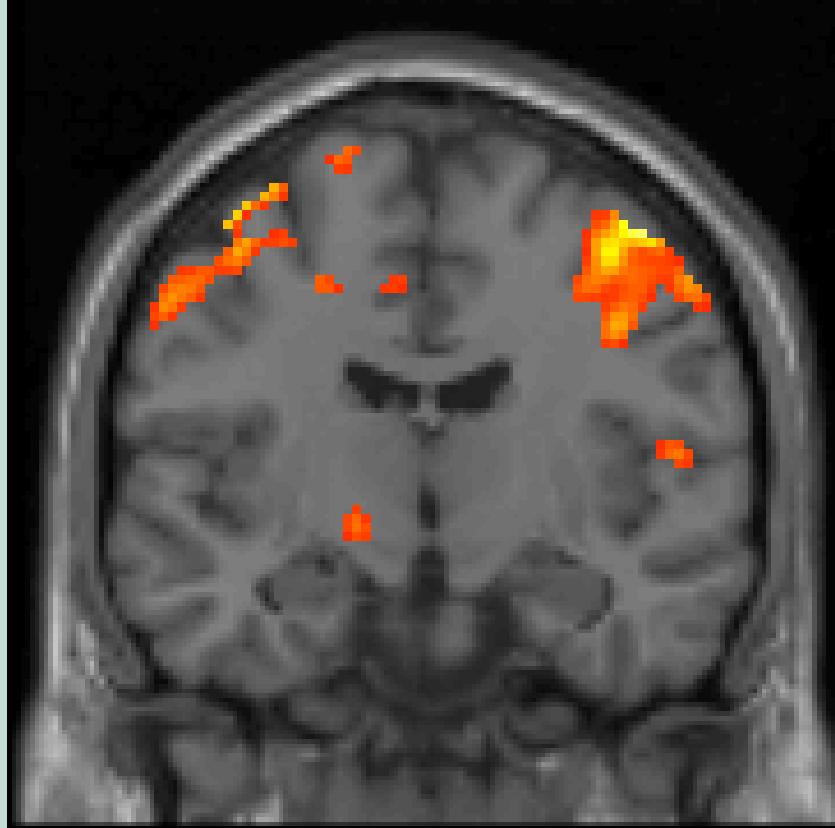




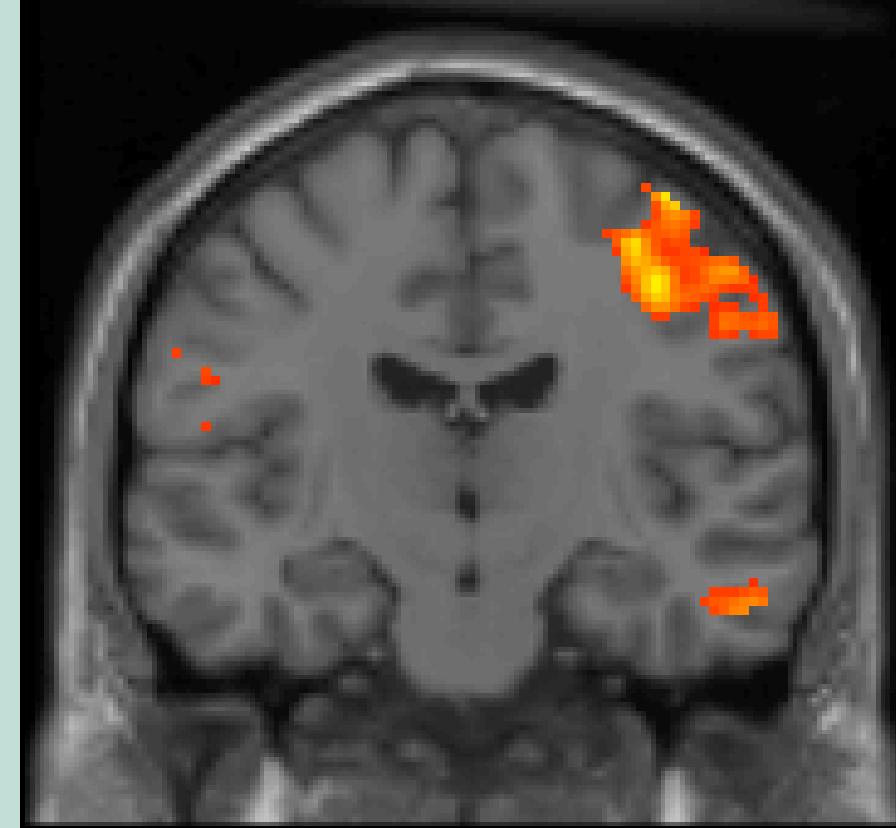
Kohorta 2: 2 vikur gomul



Functional MRI: Finger tapping við vinstru hond



Hög eksponering fyri
kvíksilvur í móðurlívi.



Lág eksponering fyri
kvíksilvur í móðurlívi (kontrol)

Serum Vaccine Antibody Concentrations in Children Exposed to Perfluorinated Compounds

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FLUORINE-SUBSTITUTED ORGANIC compounds have thousands of important industrial and manufacturing applications and occur widely in surfactants and repellants in food packaging and textile impregnation.¹ The perfluorinated compounds (PFCs) are highly persistent and cause contamination of drinking water, food, and food chains.¹ The most common PFCs, perfluorooctanoic acid (PFOA, sometimes called C8), perfluorooctane sulfonic acid (PFOS), and perfluorohexane sulfonic acid (PFHxS), have elimination half-lives in humans of at least 4 years² and are commonly detected in human serum.³

Perfluorinated compounds are transferred through the placenta,⁴ and post-

Context Perfluorinated compounds (PFCs) have emerged as important food contaminants. They cause immune suppression in a rodent model at serum concentrations similar to those occurring in the US population, but adverse health effects of PFC exposure are poorly understood.

Objective To determine whether PFC exposure is associated with antibody response to childhood vaccinations.

Design, Setting, and Participants Prospective study of a birth cohort from the National Hospital in the Faroe Islands. A total of 656 consecutive singleton births were recruited during 1999-2001, and 587 participated in follow-up through 2008.

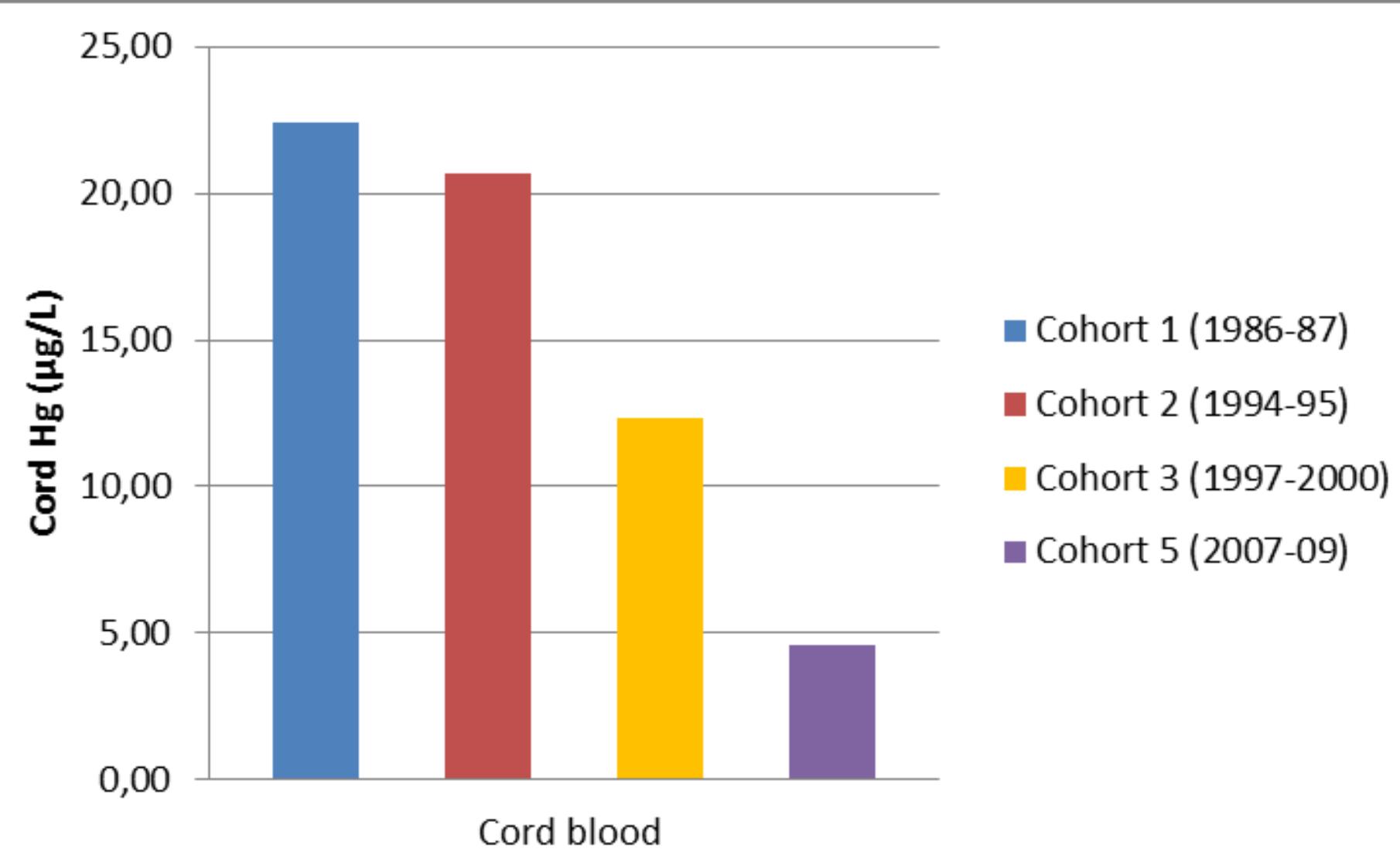
Main Outcome Measures Serum antibody concentrations against tetanus and diphtheria toxoids at ages 5 and 7 years.

Results Similar to results of prior studies in the United States, the PFCs with the highest serum concentrations were perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). Among PFCs in maternal pregnancy serum, PFOS showed the strongest negative correlations with antibody concentrations at age 5 years, for which a 2-fold greater concentration of exposure was associated with a difference of -39% (95% CI, -55% to -17%) in the diphtheria antibody concentration. PFCs in the child's serum at age 5 years showed uniformly negative associations with antibody levels, especially at age 7 years, except that the tetanus antibody level following PFOS exposure was not statistically significant. In a structural equation model, a 2-fold greater concentration of major PFCs in child serum was associated with a difference of -49% (95% CI, -67% to -23%) in the overall antibody concentration. A 2-fold increase in PFOS and PFOA concentrations at age 5 years was associated with odds ratios between 2.38 (95% CI, 0.89 to 6.35) and 4.20 (95% CI, 1.54 to 11.44) for falling below a clinically protective level of 0.1 IU/mL for tetanus and diphtheria antibodies at age 7 years.

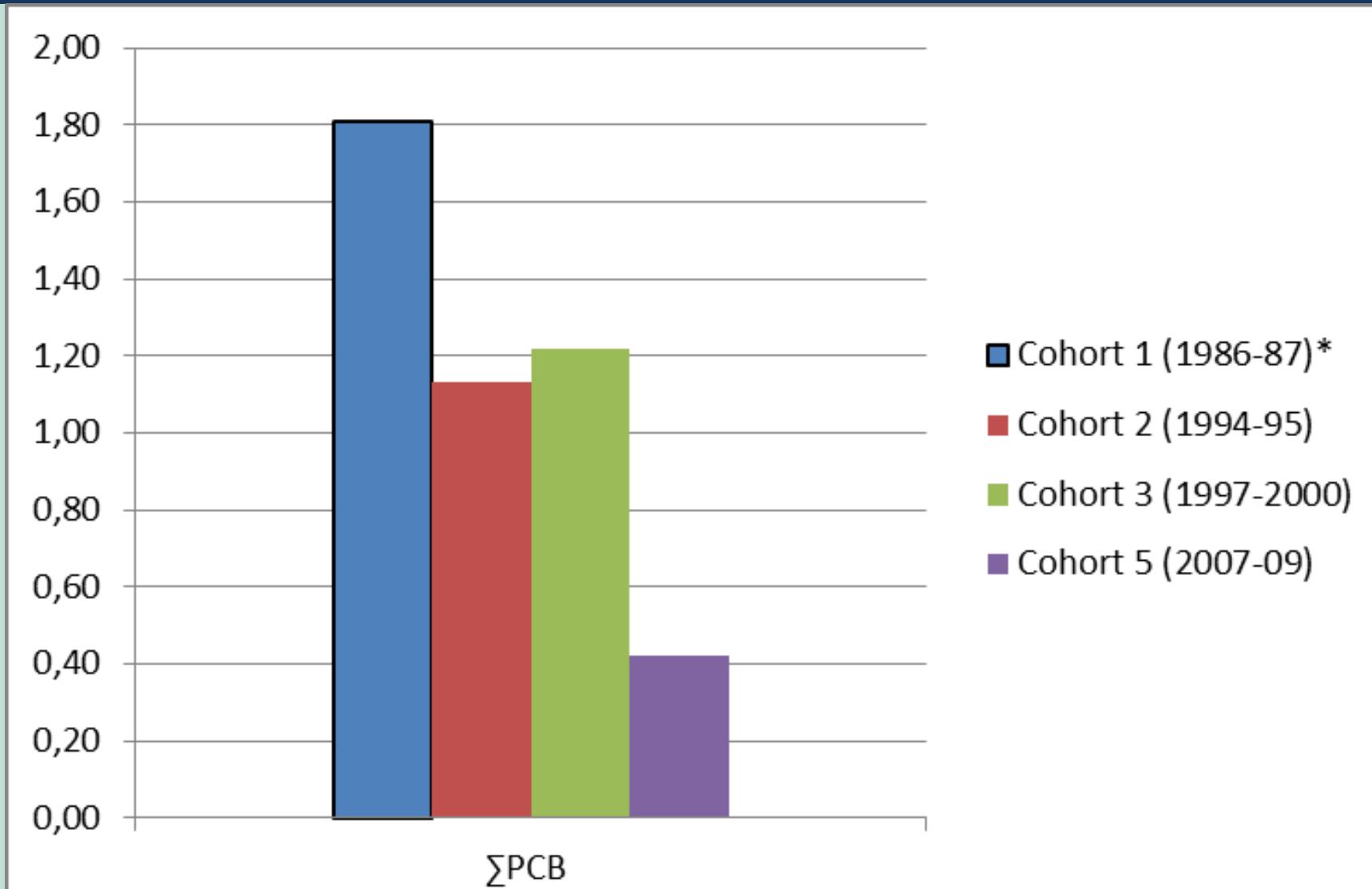
Conclusion Elevated exposures to PFCs were associated with reduced humoral immune response to routine childhood immunizations in children aged 5 and 7 years.

Kviksilvur í nalvastrongi

(Geometric mean)



Σ PCB í serum hjá mammuni í viðgongutíðini (Geometric mean $\mu\text{g/g}$)



Samanumtikið um burðarkohortnar í Føroyum

- Í alt uml. 3.000 børn og mammur teirra
- Hvørt barn kannað fleiri ferðir
- Tilsamans hava børn og ung verið til kanningar í meira enn 30.000 tímar
- Upplýsingar um heilsusøgur og kanningarúrslit teldutøk
- Umfatandi biobanki





- Tórshavn – 2007
- Miami – 2009
- Paris – 2012
- Boston – 2014
- Kitakyushy – 2016
- Tórshavn – 2018
- Chicago – 2020

The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment

Philippe Grandjean^{1,2}, David Bellinger², Åke Bergman³, Sylvaine Cordier⁴, George Davey-Smith⁵, Brenda Eskenazi⁶, David Gee⁷, Kimberly Gray⁸, Mark Hanson⁹, Peter van den Hazel¹⁰, Jerrold J. Heindel⁸, Birger Heinzwig¹¹, Irv Hertz-Pannier¹², Howard Hu¹³, Terry T-K Huang¹⁴, Tina Kold Jensen¹, Philip J. Landrigan¹⁵, I. Caroline McMillen¹⁶, Katsuyuki Murata¹⁷, Beate Ritz¹⁸, Greet Schoeters¹⁹, Niels Erik Skakkebæk²⁰, Staffan Skerfving²¹ and Pal Weihe²²

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PPTOX 2007



Niðurstøður

- Umhvørvið við lívsins byrjan kann ávirka heilsuna restina av lívinum
- Burðarkohortur eru eitt tilfeingi, sum veksur í granskingsgarvirði – men ferst um eingin brúkar tað (og nørir um tað)
- Betri er at vera fyrivarin enn eftirsnarur

