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Vitenskapskomiteen for mat og miljø
Norwegian Scientific Committee for Food and Environment

Webinar on

PFAS in the Nordic Region

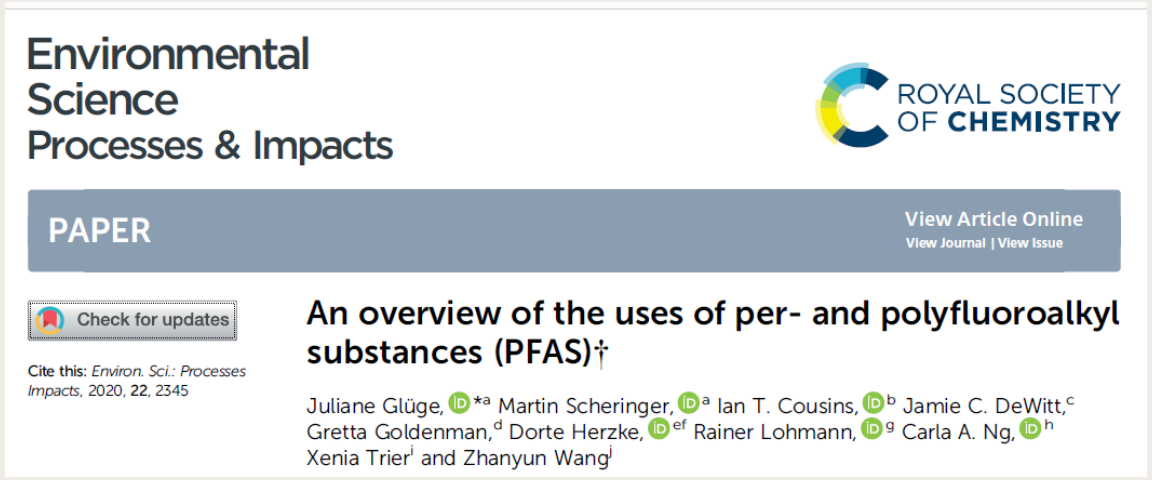
18 September 2023

FHI
Folkehelseinstituttet

Where do consumers meet PFAS in everyday life?

Line Småstuen Haug
Department of Food Safety
Centre of Sustainable Diets
Norwegian Institute of Public Health

Webinar on PFAS in the Nordic Region 18.09.2023



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An overview of the uses of per- and polyfluoroalkyl substances (PFAS)†

Juliane Glüge,[*a] Martin Scheringer,[a] Ian T. Cousins,[b] Jamie C. DeWitt,[c] Gretta Goldenman,[d] Dorte Herzke,[ef] Rainer Lohmann,[g] Carla A. Ng,[h] Xenia Trier[i] and Zhanyun Wang[j]

- > 200 uses
- > 1400 PFAS

"PFAS are used in **almost all industry** branches and in **many consumer products**."

"Some consumer products even have **multiple applications** of PFAS within the same product."

"A cell phone for example may contain fluoropolymer-insulated **wiring**, PFAS in the **circuit boards/semiconductors**, and a **screen** coated with a fingerprint-resistant fluoropolymer.»

Glüge et al. Environ Sci Process Impacts. 2020 Dec 1;22(12):2345-2373.

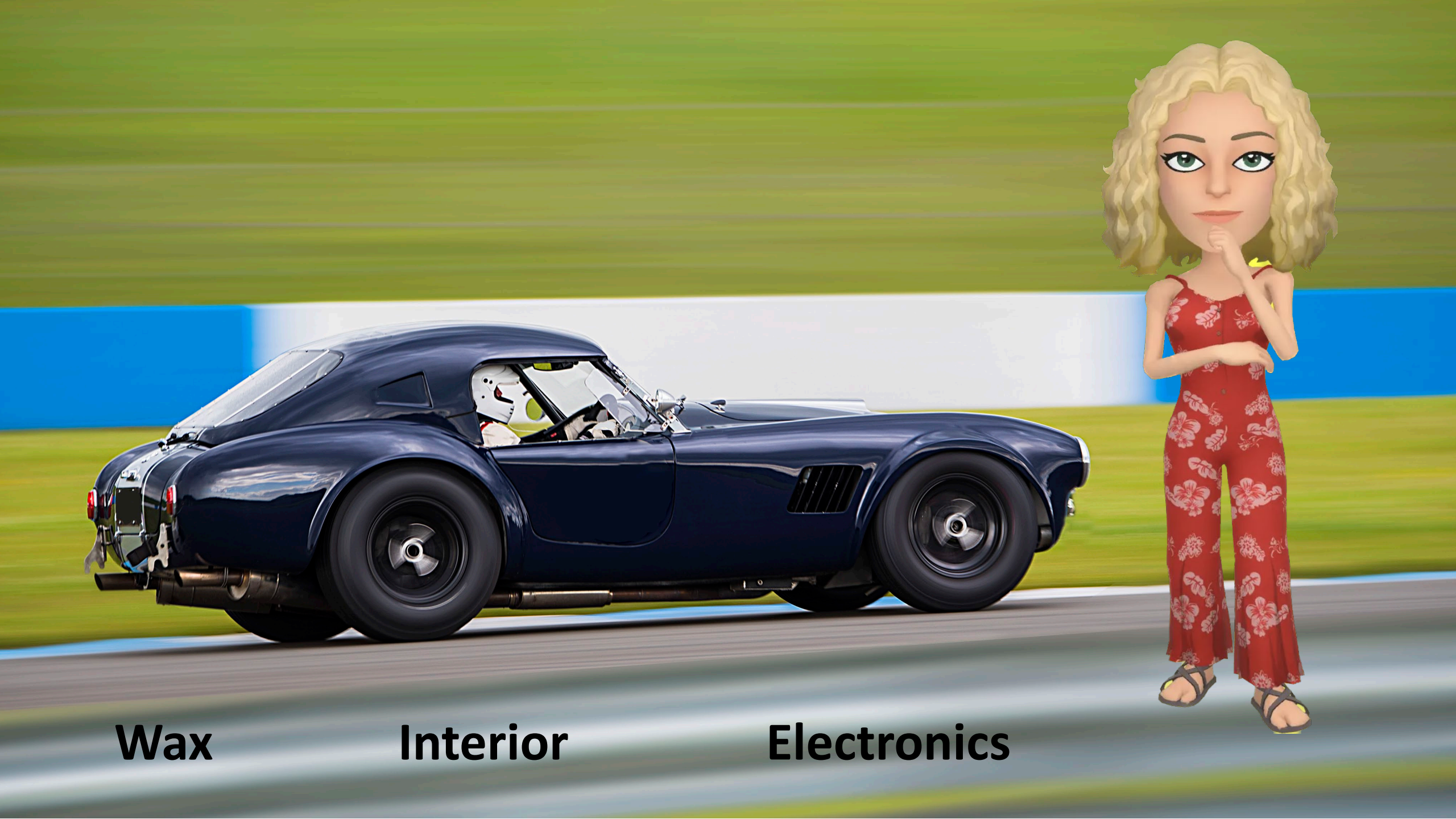

Foundation
Sun screen
Dental floss
Tooth paste
Contact lenses
Toilett paper


Food
Drinking water
Cookware
Food contact materials
Floor polish


Paints
Solar panels


Bicycle - lubricants
Batteries

LCD screens
Printer inks
Air conditioning systems


Wax
Interior
Electronics


Water proof clothes and shoes
Climbing ropes
Fishing lines
Ski wax


Carpet
Sofa
Guitar strings
House dust
Indoor air

PFAS in products ≠ exposure

How are we exposed to PFAS?

Inhalation

- Indoor air
- Outdoor air

Dermal contact

- House dust
- Products

Ingestion

- Food
- Drinks
- House dust

Where do we get most of the PFAS in our body from?

- 61 Norwegian adults
- 74% women
- average age: 42 years
- Intakes of 13 PFAS

A·TEAM
ADVANCED TOOLS FOR EXPOSURE ASSESSMENT AND BIOMONITORING

Papadopoulou et al. Emerging Contaminants. 2016. 2:26-36

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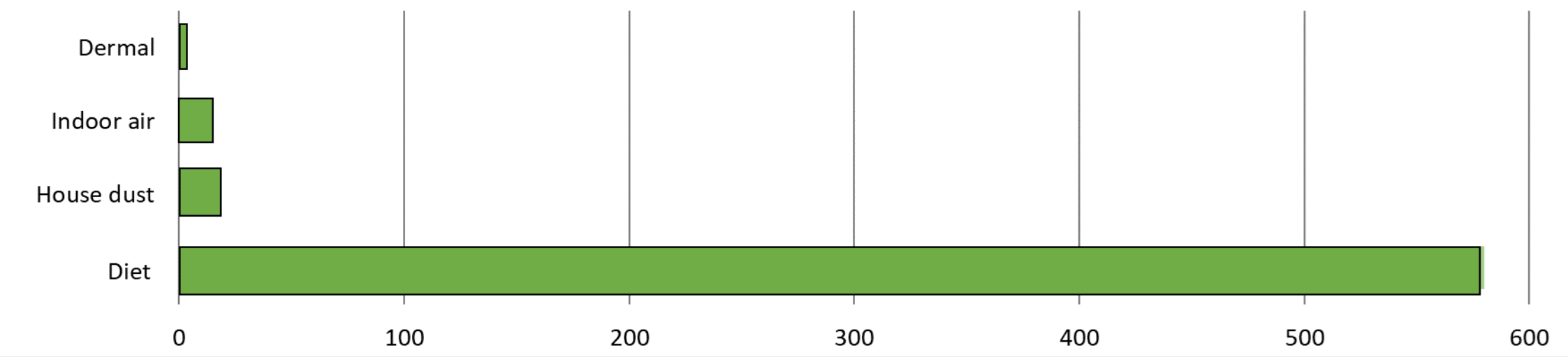
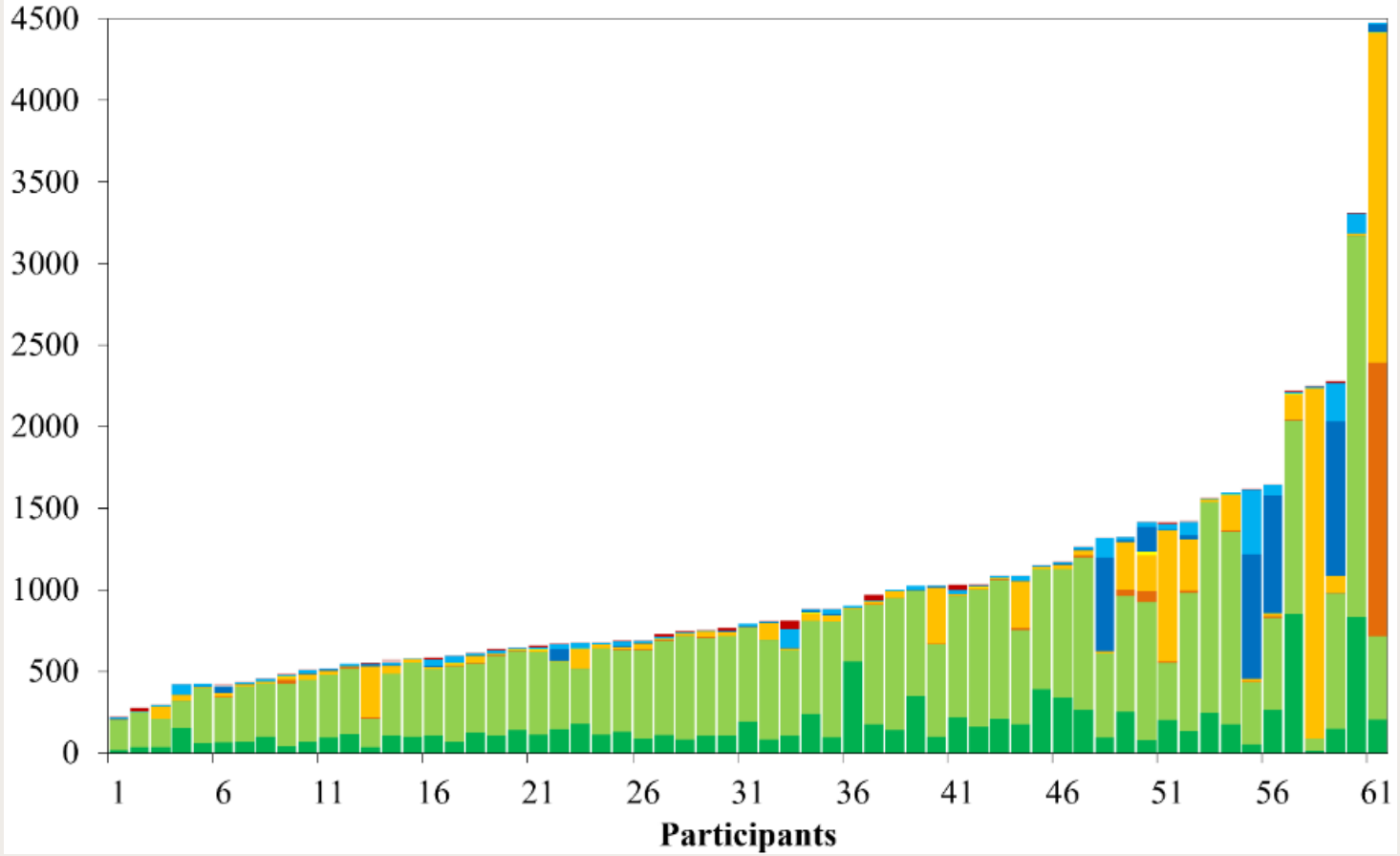
Median daily intakes



pg per kg bodyweight per day

Poothong et al. Environment International 134 (2020) 105244

Individual daily intakes



pg per kg bodyweight per day

Green: diet

Yellow: house dust

Blue: indoor air

Red: dermal

Poothong et al. Environment International 134 (2020) 105244

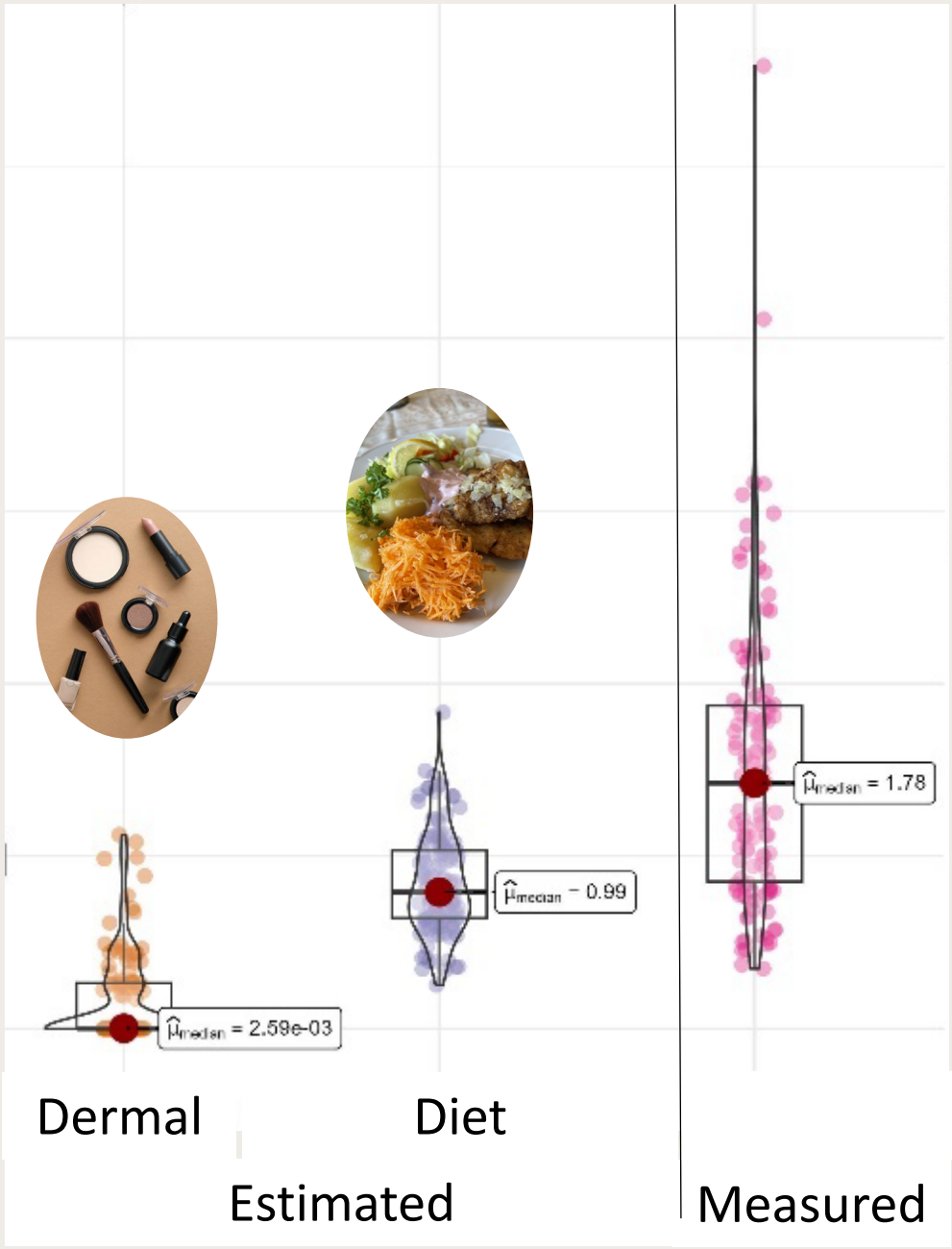
What about personal care products (PCPs)?

- 144 Norwegian adults
- 44 men and 100 women
- 25-72 years

EuroMix

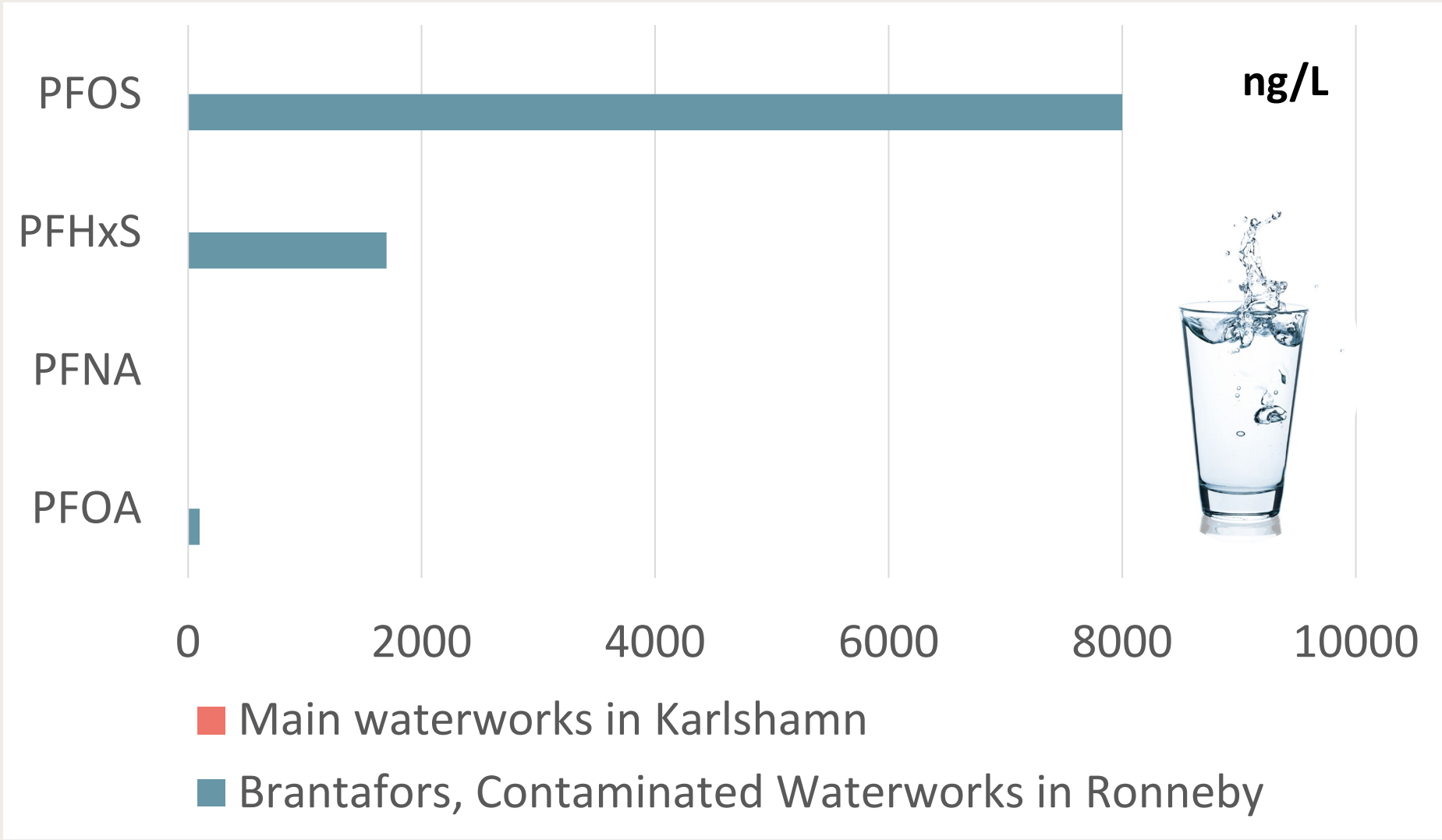
Husøy et al. Environ Int. 2019;132:105103

Thépaut et al. Environ Res. 2021 Apr;195:110795



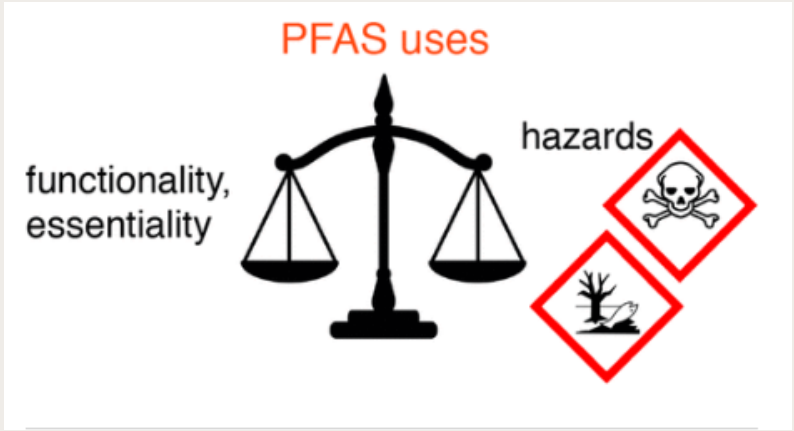
The contribution of PFOA from PCPs can be higher than from the diet for some individuals

Husøy et al. Comparison of aggregated exposure to perfluorooctanoic acid (PFOA) from diet and personal care products with concentrations in blood using a PBPK model – results from the Norwegian biomonitoring study in EuroMix. Under revision in Environmental Research

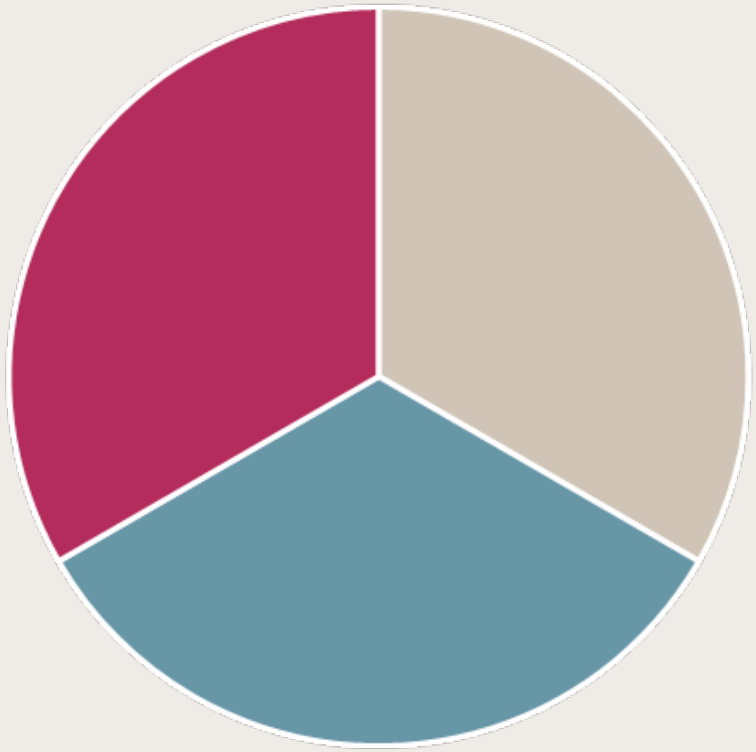


Xu et al. Environ Int. 2021;147:106333

Consept of essential use



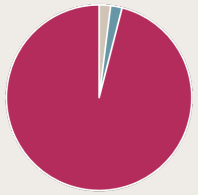
Glüge et al. Environ Sci Technol. 2022, 17;56(10):6232-6242.



non-essential

substitutable

essential



Cousins et al. Environ Sci Process Impacts. 2019 Nov 1;21(11):1803-1815

Take home messages

- PFAS are everywhere
- PFAS in products ≠ exposure