













Photo by [Luisa Brimble](#) on [Unsplash](#)



# DO WE NEED TO LOWER OUR USE OF E 621 IN FOOD?

Unravelling the exposure and risk  
to free glutamate from  
food additive and non-additive sources  
in Belgium

# Alleged health hazards



Headache

Chinese restaurant syndrome  
MSG symptom complex

Neurodevelopmental toxicity

GRAS (US FDA)

ADI = 30 mg/kg<sub>bw</sub>/day (EFSA)

# Added or natural presence?

E621 may be added to food to enhance its original flavour:

Major exposure due to food additive use or natural presence of free glutamate?







# Selection of food based on a priority scheme

Collection of > 550 food items

- Labelled with E 621
- Similar items without E 621
- Other food
  - Expected major contributors
  - Expected concentrations
  - Consumption rates
  - Data gaps
  - Market sale data

Free glutamate analysed by UHPLC-MS/MS, after extraction with diluted HCl



# Exposure assessments for different age populations

Analytical results combined with Belgian food consumption data

Exposure calculations:

- Total exposure to free glutamate (from food additives and non-food additive sources)
- Exposure to free glutamate from non-food additive sources
- Exposure from food additives



# Free glutamate occurrence in Belgium

## Food containing E 621:

- Stock cubes
- Crisps and (cheese) crackers
- Soups

## No exceedance of MPLs

## Food without E 621:

- Ripened cheese
- Soy sauce
- Tomato concentrate



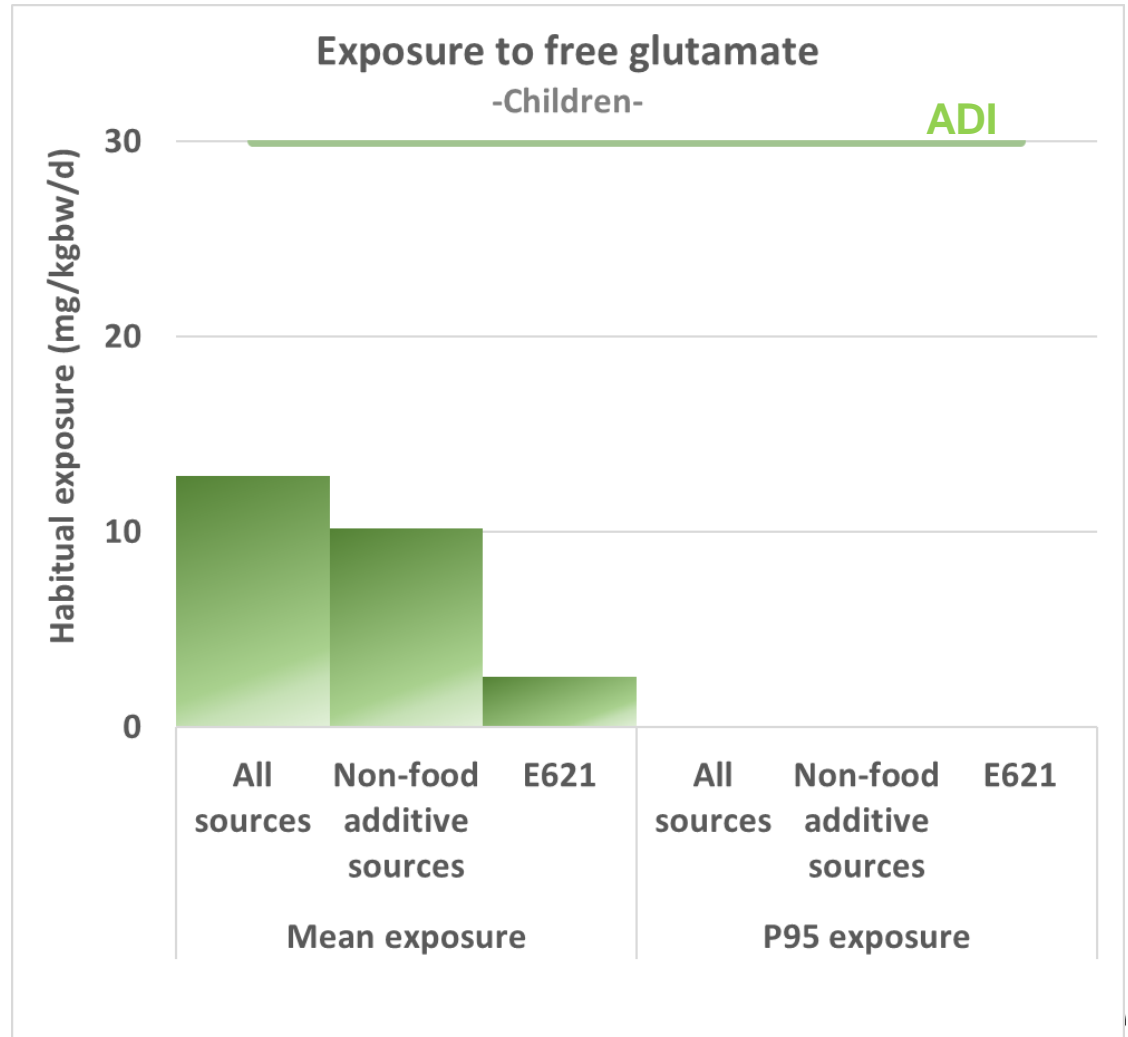


# Free glutamate exposure in Belgium



**NO**

exceedance of acceptable  
daily intake

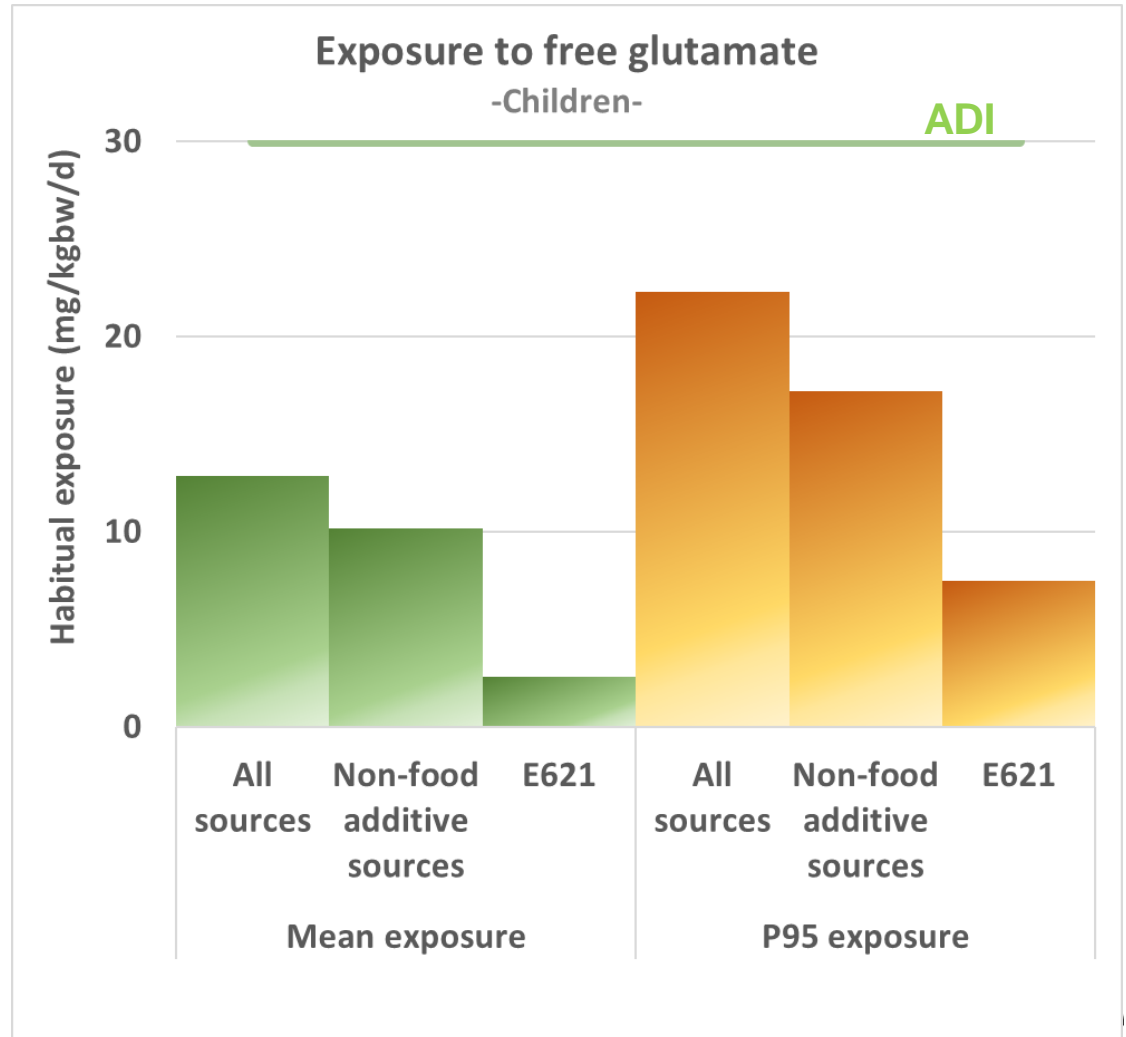


# Free glutamate exposure in Belgium



# NO

exceedance of acceptable  
daily intake





# Free glutamate exposure in Belgium



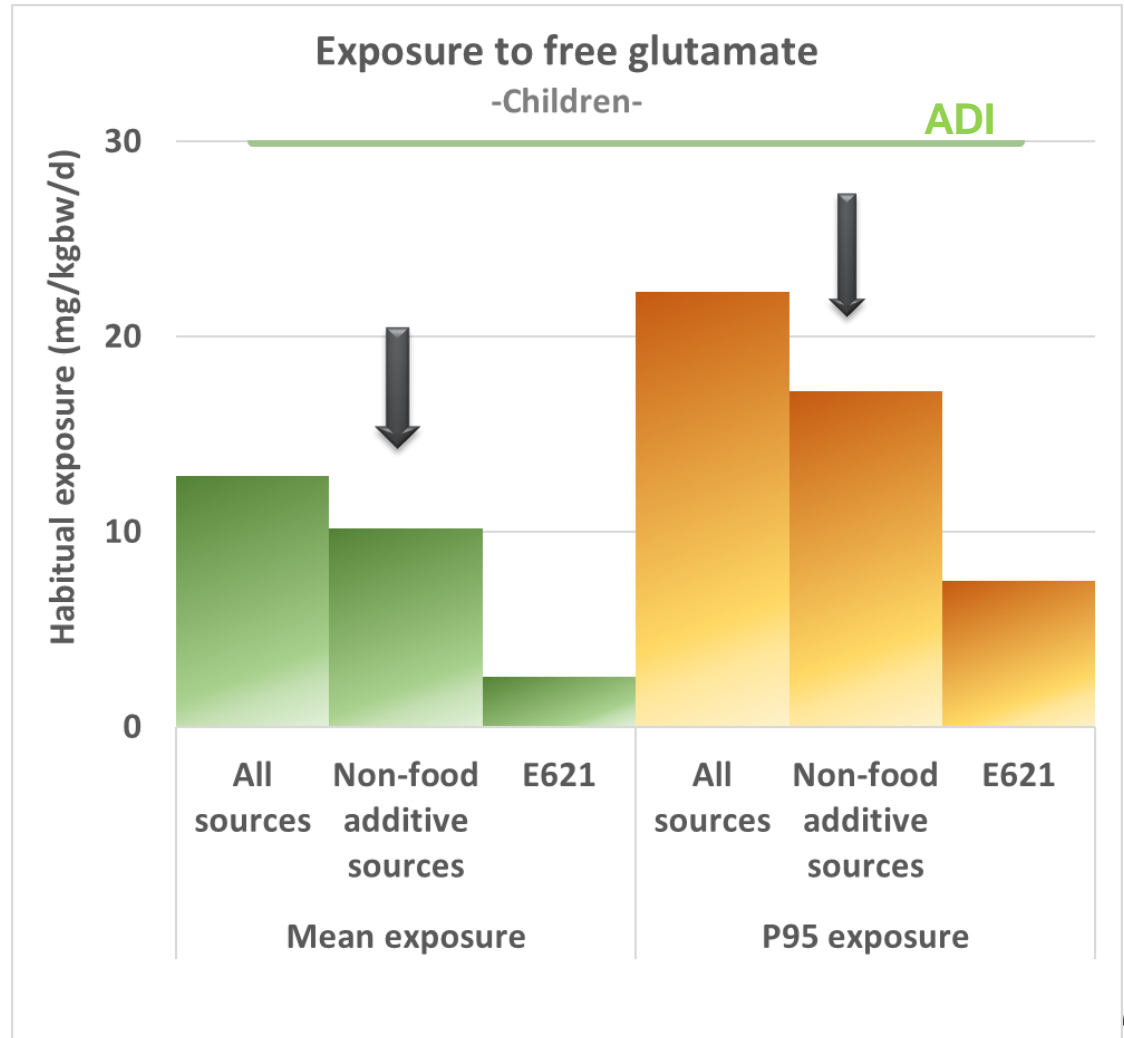
# NO

exceedance of acceptable daily intake



# 80%

of free glutamate exposure comes from non-food additive sources



# Free glutamate exposure in Belgium



## NO

exceedance of acceptable daily intake



## 80%

 of

free glutamate exposure comes from non-food additive sources

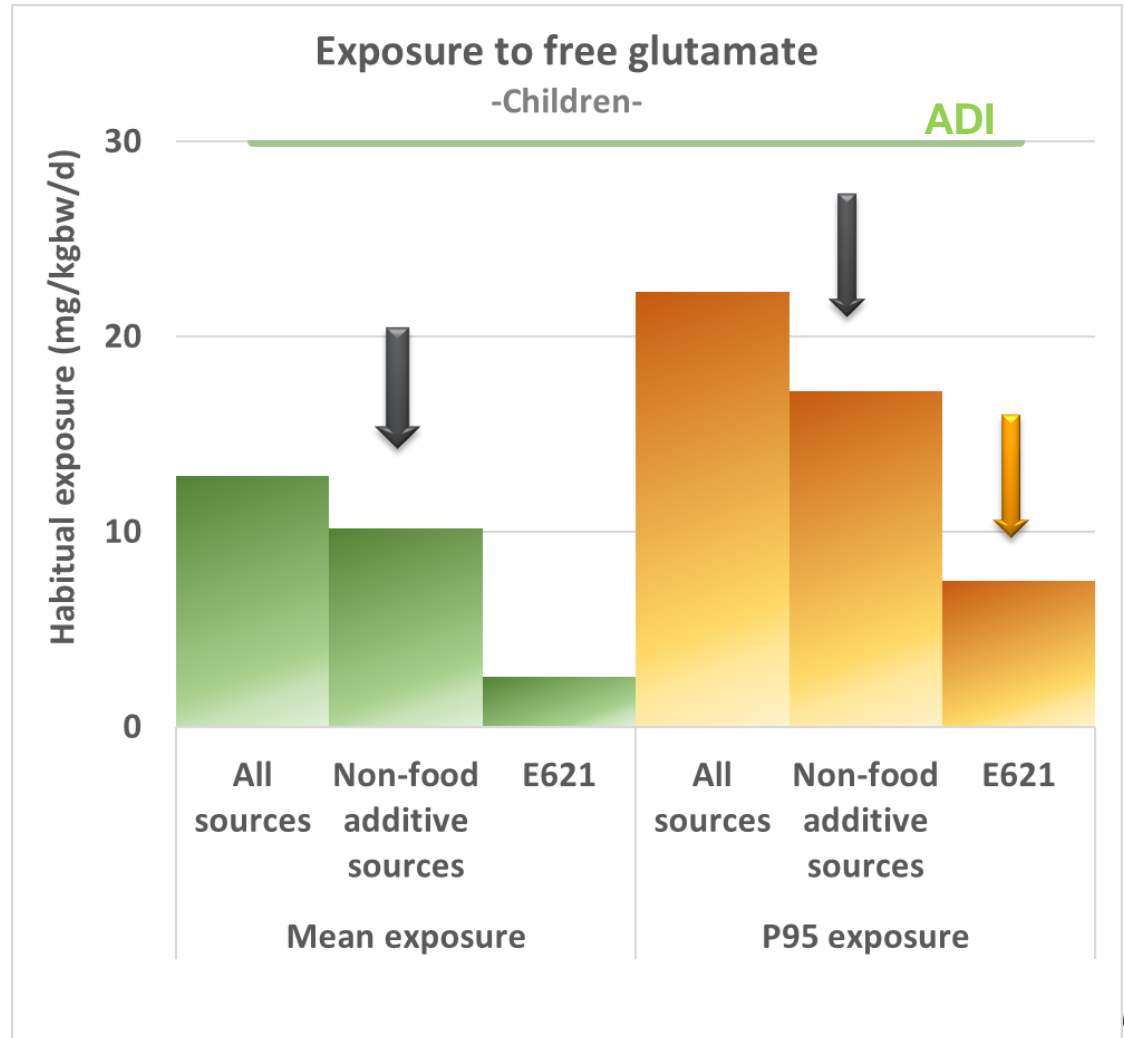


E621

## 25%

 of

Acceptable daily intake is reached by highly exposed children due to E621





# Major food groups contributing to free glutamate exposure in Belgium



- Ripened cheese
- Stock cubes or granulates
- Tomatoes
- Processed tomato products
- Ready-to-eat meals

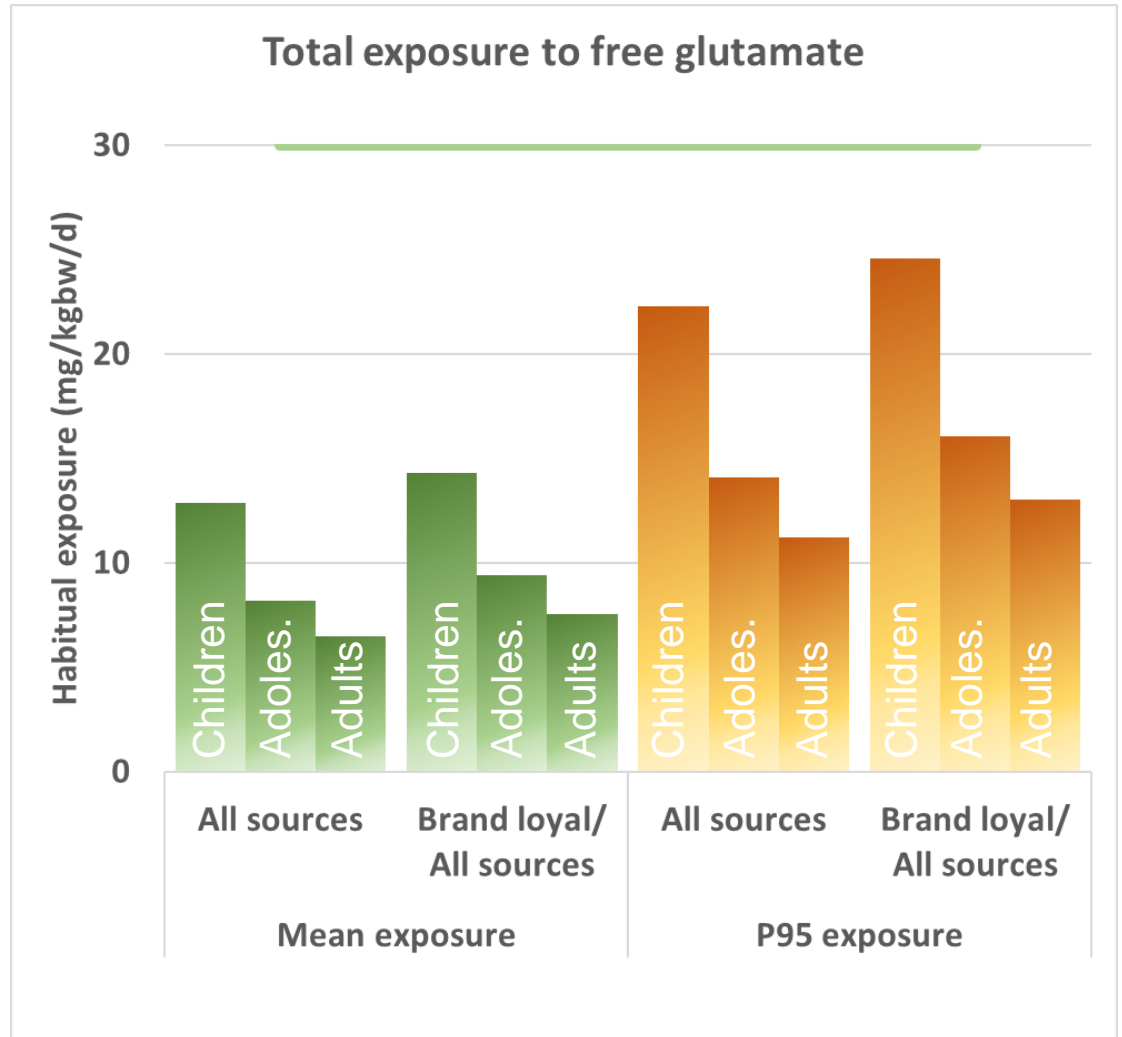
# Free glutamate exposure with brand-loyalty for cheese



# 82%

of ADI reached by brand-loyalty to cheese at high-level exposure

Currently no health concern, but regular follow-up recommended



- 🔍 Do we need to lower our use of E 621 in food?
- ✓ Major exposure to free glutamate from non-food additive sources
- ✓ Total exposure below acceptable daily intake
- » Authorities can decide upon appropriate risk management strategy

