

## PRESS RELEASE

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# STUDY CONFIRMS LINK BETWEEN PLACE OF RESIDENCE, CONSUMPTION OF SUGAR-SWEETENED BEVERAGES AND OBESITY

Some 42% of Swiss people are overweight or obese. In a groundbreaking study published today, scientists used precision geospatial analysis techniques to show that obesity and the consumption of sugar-sweetened beverages (SSBs) are more prevalent in some parts of Geneva than others. According to the authors, the study is the first of its kind to establish a link between place of residence, SSB consumption and high body mass index (BMI). The findings, published in the journal [\*Nutrition & Diabetes\*](#), were reported by the GIRAPH Lab, which brings together researchers from Geneva University Hospitals (HUG), EPFL, the University of Geneva (UNIGE), and the Lausanne University Hospital (CHUV).

In 2014, two researchers produced a detailed map showing the [spatial distribution of overweight individuals by place of residence](#) in Geneva. The map, which revealed parts of the city with a high body mass index (BMI), was compiled by Prof. Idris Guessous, head physician, Department of Primary Care and Emergency Medicine, Geneva University Hospitals (HUG) and associate professor, Department of Community Health and Medicine, Faculty of Medicine, University of Geneva (UNIGE), and by Dr. Stéphane Joost, senior scientist, Laboratory of Geographic Information Systems (LASIG), EPFL.

A new study by Prof. Guessous and Dr. Joost, using similar analytical methods and an even larger sample size, demonstrates a significant spatial overlap between weight problems and the consumption of sugar-sweetened beverages (SSBs). The findings reveal that 43% of people residing in neighborhoods with a higher-than-average BMI also live in areas where excess SSB consumption is an issue.

The causes of obesity are many and complex, but in recent years a number of international studies have pointed to sugary drinks as one of the culprits behind the growing prevalence of the condition. This body of research has nevertheless sparked intense global debate. The paper published today strengthens the link between SSB consumption and body weight at the local level.

### **Over 15,000 participants**

The paper's authors analyzed data on 15,767 residents of Geneva Canton between the ages of 20 and 74. The dataset, spanning 1995 to 2014, was compiled as part of the [Bus Santé](#) study by HUG's Population Epidemiology Unit (UEP), led on behalf of the Geneva State General Directorate of Health. Each year, 500 men and 500 women – a representative sample of the canton's population – attended an appointment at the UEP, where they completed a health, exercise and diet survey, had their height and weight measured, and underwent a blood test.

### **Precision spatial analysis**

Most spatial epidemiology studies involve predefined geographical units or zones, such as towns or neighborhoods. In this case, the researchers adopted a different approach, choosing instead to map participants solely by the precise coordinates of their place of residence. They then measured the distance between places of residence and looked for similar patterns of behavior between participants, to produce the maps shown below.

Using this precision analysis method, the researchers found that differences in BMI among Geneva's residents are not randomly distributed. As the maps below reveal, there are areas of the city where BMI is above the canton-wide average of 25. The researchers then used the same method to map SSB consumption. When they compared the two maps, they observed a significant overlap between areas of above-average BMI and excess SSB consumption.

### **More targeted prevention campaigns**

The study also underscores the importance of targeted public health programs, as recommended by the [GIRAPH Lab](#). For instance, focusing efforts on areas where BMI and SSB consumption are high and tailoring interventions and prevention campaigns to the target audience could potentially deliver better outcomes.

### **What are sugar-sweetened beverages?**

Sugar-sweetened beverages (SSBs) are drinks with added sugar, including soft drinks, flavored juice drinks, sweetened tea and coffee, energy drinks and electrolyte replacement drinks. While SSBs have different sugar contents, some – especially soft drinks – can contain as much as 39 grams per 330 milliliters. SSB consumption has increased steadily in Switzerland and Europe in the past 20 years. The average Swiss person drinks 80 liters a year, below the European average of around 95 liters.

In addition to contributing to weight gain, SSBs contain high levels of fructose, a substance that can provoke potentially harmful metabolic responses. Excessive fructose intake is associated with increased visceral fat, lipid metabolism disorders and reduced insulin sensitivity. Recent studies<sup>1</sup> have also found that even moderate

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<sup>1</sup> Studies cited in the [Nutrition & Diabetes](#) paper, page 20, references 10 to 16.

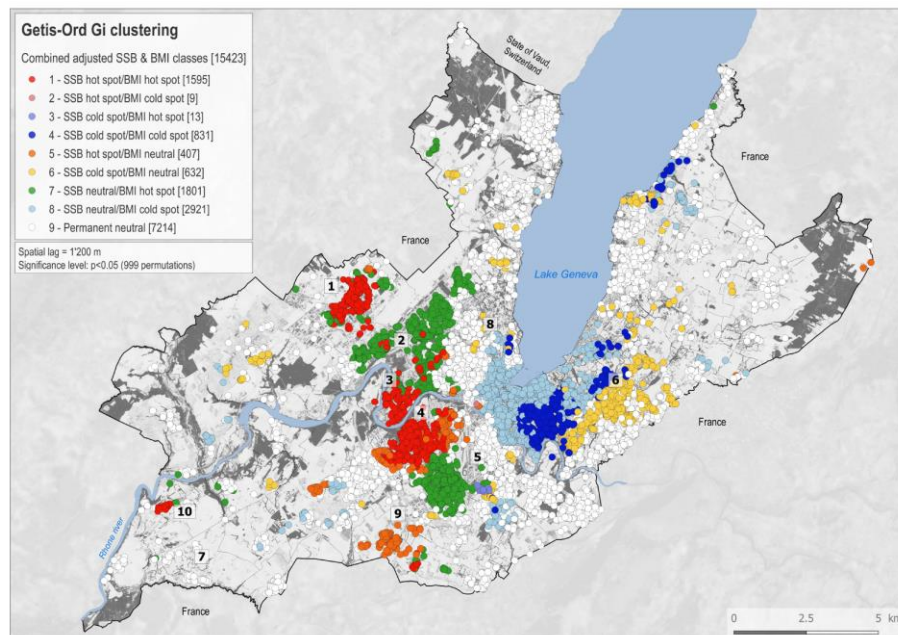
SSB consumption could increase the risk of stroke, cardiovascular disease, high blood pressure and type 2 diabetes.

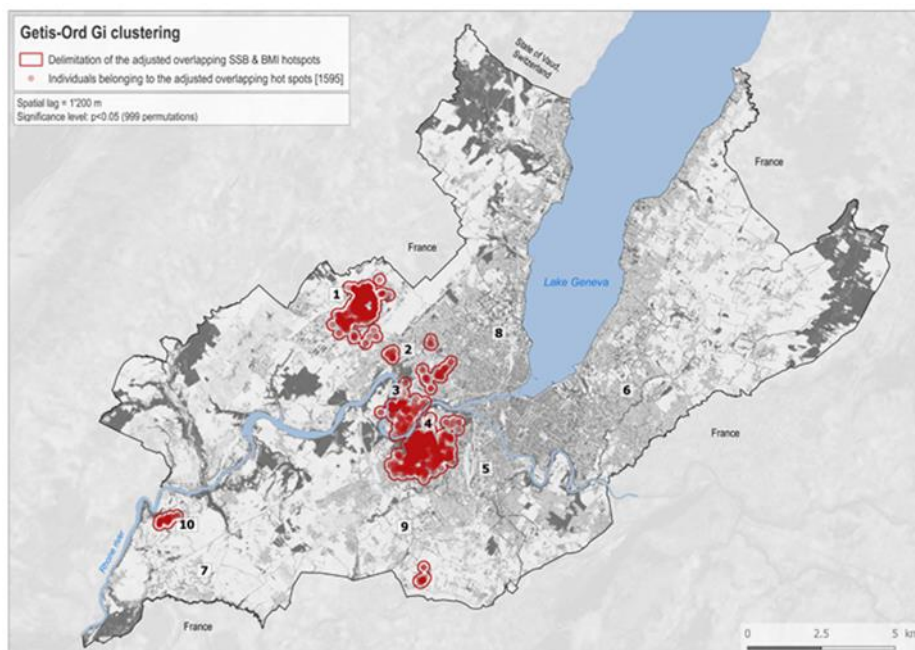
### Body mass index

Body mass index (BMI) is a metric used by the World Health Organization to assess the risks associated with being overweight. It is defined as a person's weight divided by their height squared. The normal BMI range is between 18.5 and 25. People with a BMI of between 25 and 30 are considered overweight, while those with a BMI above 30 are classed as obese.

### Photos (HD versions available)

Spatial distribution of participants in the HUG Bus Santé study by body mass index (BMI) and frequency of sugar-sweetened beverage consumption (SSB-IF) combined.





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