



Paris, le 7 February 2013

## Press Release

### **'Diet' drinks associated with increased risk of Type II diabetes**

Françoise Clavel-Chapelon, (Director of Research at INSERM-University of Paris-Sud 11, at the Institut Gustave Roussy), and Guy Fagherazzi were interested in a connection between the consumption of 'diet' or 'light' soft drinks and the risk of Type II diabetes. The analysis performed on 66,188 women in the E3N cohort confirms a link between sweet soft drinks and type II diabetes and reveals for the first time in France that, contrary to received wisdom, there is a higher risk of diabetes from so-called 'diet' or 'light' drinks than from 'normal' sweetened soft drinks. Additional studies on the effects of 'light' sweetened soft drinks are needed to corroborate the result. The article containing details of the results was published in the [American Journal of Clinical Nutrition](#).

Diabetes affects more than three million people in France, 90% of whom suffer from Type II diabetes. While it has been established that consumption of sweetened drinks is associated with an increased risk of obesity and of Type II diabetes, the effect of 'diet' or 'light' sweetened soft drinks on cardio-metabolic diseases is less well-known. INSERM researchers on the E3N team assessed the link between the consumption of sweetened soft drinks and the risk of developing type II diabetes. The study was conducted on 66,118 French women in the E3N cohort who were monitored for 14 years.

The results show that women who drink 'light' or 'diet' sweetened soft drinks drink more of them than those who drink 'normal' sweet soft drinks (2.8 glasses per week as against an average of 1.6 glasses per week respectively).

Yet when an equal quantity is consumed, the risk of contracting diabetes is higher for 'light' or 'diet' drinks than for 'non-light' or 'non-diet' drinks. The risk of developing diabetes is 15% greater with the consumption of half a litre per week and 59% greater for the consumption of 1.5 litres per week, respectively.

**Is this risk mainly associated with 'light' or 'diet' soft drinks?** In order to find this out, the researchers also investigated the effects on the human organism of 100% natural squeezed fruit juices and their study found no association with a risk of diabetes.

#### **How can these results be explained?**

Several mechanisms can explain the increased risk of diabetes associated with high consumption of sweetened soft drinks:

- Firstly, in terms of calories, these drinks are no substitute for solid food because sweet soft drinks are not sufficiently satiating (so the calories in sweet soft drinks are added to the calories in solid food). Furthermore, the sugars contained in sweetened drinks produce an insulin peak reaction and repeated peaks of this kind can result in greater insulin resistance.

- With respect, in particular, to 'light' or 'diet' drinks, the relationship with diabetes can be explained partially by a greater craving for sugar in general by female consumers of this type of soft drink. Furthermore, aspartame, one of the main artificial sweeteners used today, causes an increase in glycaemia and consequently a rise in the insulin level in comparison to that produced by sucrose.

The consumption of sweetened soft drinks increases the risk of being overweight, itself a risk factor in diabetes. In their study, the E3N team researchers observed, however, that the effect produced by high consumption of sweet drinks was independent of corpulence in women.

In conclusion, it has been shown for the first time in a French population that high consumption of sweet soft drinks (both normal and 'light') is associated with a high increase in the risk of contracting Type II diabetes. This increased risk is all the greater for drinks of the 'light' or 'diet' type. Additional studies of the effects of 'light' or 'diet' soft drinks are necessary to confirm this result.

#### For more information:



**THE E3N STUDY ([www.e3n.fr](http://www.e3n.fr))**

The E3N, or **Epidemiological Study on women of the MGEN** (Mutuelle Générale de l'Education Nationale), led by Françoise Clavel-Chapelon, INSERM Director of Research, is the prospective study of a cohort that includes about 100,000 French female volunteers born between 1925 and 1950 who have been monitored since 1990.

Since 1990, the women have been completing and sending back self-questionnaires every two to three years. They are questioned about their lifestyle (diet, hormone treatments, etc.) on the one hand and how their state of health has changed on the other.

Data concerning risk factors have been the subject of several validation studies. There are very few drop-outs from the study due to the opportunity offered by MGEN to follow up those who fail to reply. But it is mainly due to the loyalty and constancy of the participants, and thanks to the cooperation from their treating physicians that the E3N study has been able to produce all these results.

E3N is the French component of **EPIC** (European Prospective Investigation into Cancer and Nutrition), a vast Europe-wide study coordinated by the Centre International de Recherches sur le Cancer (**CIRC**) and covering 500,000 Europeans, male and female, in ten countries.

The E3N study is supported by four founding partners, INSERM, the Ligue contre le Cancer, the Institut Gustave Roussy and the MGEN.

#### Sources

#### **Consumption of artificially and sugar-sweetened beverages and incident type 2 diabetes in the E3N-EPIC cohort.**

Guy Fagherazzi, PhD; Alice Vilier, MSc; Daniela Saes Sartorelli, PhD; Martin Lajous, ScD; Beverley Balkau, PhD; Françoise Clavel-Chapelon, PhD.

#### [American Journal of Clinical Nutrition](#)

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