

This is a draft paper for discussion.

It does not reflect the views of the Committee and should not be cited.

TOX/2018/30

## **COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT**

### **First draft interim position paper on potential risks from “energy drinks” in the diet of children and adolescents.**

The Department of Health and Social Care are currently consulting on a proposal to ban the sale of “energy drinks” to children. The COT has been asked for its views on the safety aspects of “energy drink” consumption by children and adolescents, specifically the effects of caffeine and other components associated with energy drinks.

Members discussed an initial scoping paper at their meeting in July 2018<sup>1</sup> on the potential risks to children and adolescents from the consumption of “energy drinks”. The views of the Committee are reflected in the attached position paper. A full statement will be produced in due course covering other aspects of “energy drink” consumption such as effects on behaviour.

Members may also be aware that Dr John Thompson gave evidence on this issue to the Lords Science and Technology Committee on the 10<sup>th</sup> July 2018<sup>2</sup>.

Members are asked to comment on the draft interim position paper attached in Annex 1.

**Secretariat**

**August 2018**

---

<sup>1</sup> Available at: [https://cot.food.gov.uk/sites/default/files/tox2018-27\\_0.pdf](https://cot.food.gov.uk/sites/default/files/tox2018-27_0.pdf)

<sup>2</sup> Transcript available at: <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee/energy-drinks/oral/86807.pdf>

## COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

### First draft interim position paper on potential risks from “energy drinks” in the diet of children and adolescents.

#### Introduction

1. “Energy drinks” are defined by the presence of compounds, mainly high amounts of caffeine, that are intended to enhance the consumer’s physical performance and cognitive state, as opposed to “sports” drinks, which are formulated to replace water and electrolytes lost during exercise. As there is no official definition, drinks containing added caffeine above 150 mg per litre are referred to as “energy drinks” throughout this document.

2. The Department of Health and Social Care (DHSC) are currently consulting on a proposal to ban the sale of “energy drinks” to children. The COT has been asked for its views on the safety aspects of “energy drink” consumption by children and adolescents, specifically the effects of caffeine and other components associated with “energy drinks”. An initial scoping paper was discussed in July 2018 on the potential risks to children and adolescents from the consumption of “energy drinks”<sup>3</sup>. Due to the time frames involved, the COT has produced this interim position paper based on their preliminary discussions, which will be submitted to the DHCS in response to their consultation. A full statement will be produced in the near future following further literature searching and when committee discussions have taken place.

3. In 2016, more than 20 brands of “energy drink” were on sale in the UK<sup>4</sup>. A recorded 3.74 million people drank Red Bull in the UK that year, making it the most popular “energy drink” brand by its number of users. Sales of “energy drinks” constituted 13.4% of the soft drinks market in the same year<sup>5</sup>

4. The EU has had legislation in place since 2011 that requires all drinks (excluding tea and coffee) containing over 150 mg of added caffeine per litre, to bear

---

<sup>3</sup> Available at: [https://cot.food.gov.uk/sites/default/files/tox2018-27\\_0.pdf](https://cot.food.gov.uk/sites/default/files/tox2018-27_0.pdf)

<sup>4</sup> <https://www.statista.com/statistics/308493/leading-brands-of-energy-drinks-excluding-colas-or-mixers-for-alcoholic-drinks-in-the-uk/>

<sup>5</sup> <https://www.statista.com/statistics/422739/soft-drink-market-share-by-category-in-the-united-kingdom/>

the statement “High caffeine content. Not recommended for children or pregnant or breast-feeding women”. In addition, the amount of caffeine in mg per 100 ml (mg/100ml) of drink must appear after this statement. Although additional caffeine labelling was required from 2004, but at that time only the statement “High caffeine content” was required along with the level of caffeine in mg/100ml.

5. EFSA carried out a comprehensive review of the literature on caffeine and “energy drinks” in 2015 prepared by the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA). Due to the extensive database, the panel reviewed previous risk assessments from authoritative bodies worldwide to identify the major health concerns which were relevant (EFSA, 2015). The COT will use this EFSA review extensively in the final statement, but a literature search will also be carried out for studies that specifically look at children and young people.

### **Components of “energy drinks”**

6. In addition to sugar and caffeine, “energy drinks” vary in their lesser components. Common ingredients include taurine; B-group vitamins; D-glucurono- $\gamma$ -lactone; guarana (a tropical shrub, the berries of which contain caffeine, theophylline and theobromine); ginseng; ginkgo biloba; L-carnosine; inositol; or a mixture of these and other minor components, but all at levels too low to be of toxicological concern in most individuals. (Higgins *et al* (2010).

### **Conclusions from the preliminary discussion by COT**

7. “Energy drinks” contain variable amounts of caffeine as their main active constituent; the effects of other non-caffeine constituents are unlikely to be of toxicological or pharmacological concern.

8. The Committee were clear that caffeine in “energy drinks” should be considered in the context of total caffeine consumption. Coffee can contain higher amounts of caffeine and sugar than “energy drinks”. Whilst the temperature of hot beverages may go some way to slow down their consumption, it would not affect the rate of absorption once the beverage has been ingested. The other components of “energy drinks” such as taurine and D-glucurono- $\gamma$ -lactone are unlikely to change the potency and activity of the caffeine in these beverages. The Committee noted that “energy drinks” were not the largest source of caffeine in the diets of adolescents or children.

9. Members reiterated their agreement with the EFSA approach of extrapolating from adults to children on a body weight basis, given the lack of direct data in children and considering that the rate of caffeine clearance in children and adolescents is at least that of adults.

10. Whilst some “energy drinks” contain significant amounts of sugar and will be subject to the new Soft Drinks Industry Levy, the levels of sugar are equivalent to those found in other soft drinks and therefore “energy drinks” should not be singled out for their sugar content.

11. The Committee recognised that caffeine was a diuretic at high doses and had effects on heart rate and blood pressure. The response to caffeine appeared to be influenced by the dose, presence of food, and individual’s intrinsic metabolism, acquired tolerance, withdrawal status and by psychological parameters such as consumer expectations and societal drivers of consumption.

12. Any beneficial effects of consuming “energy drinks” appear to be limited and of a short-term nature.

13. Children and adolescents have until recently had full access to “energy drinks” but new voluntary restrictions by food retailers limit this. The taste of these products is a common driver for consumption but overall, drinking “energy drinks” is influenced by various, sometimes conflicting, factors including perceived stimulation, availability, warnings on packaging, advertising, peer pressure and parental influence. Most surveys suggest that boys consume a greater volume of “energy drinks” than girls.

14. Use of “energy drinks” has been associated with adverse effects including poor sleep, reduced attention in school and nervousness or anxiety. “Energy drinks” are also consumed mixed with alcohol in older adolescents, which may be associated with “risky” behaviours. However, many of the studies on “energy drinks” are cross-sectional and involve self-reported questionnaires from which cause and effect cannot be determined and which are prone to subjective bias. There are few if any longitudinal studies following “energy drink” consumers over time. A lot of evidence is also anecdotal or based on surveys from energy drink users. Many of the studies are subject to confounding by other dietary and life style factors as well as psychological effects such as expectation.

15. Overall the consumption of “energy drinks” by children and adolescents is a complex social issue and while the effects of acute consumption have been documented, chronic effects and any potential lasting effects from being consumed while brain development is still ongoing are still unknown. Further research would be required before more definite conclusions could be made on the long-term effects of caffeine consumption by children and adolescents.

This is a draft paper for discussion.

It does not reflect the views of the Committee and should not be cited.

## References

EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies) 2015. Scientific Opinion on the safety of caffeine. EFSA Journal 2015; **13**(5):4102, 120pp. doi:10.2903/j.efsa.2015.4102.

Higgins JP, Tuttle TD, Higgins CL Energy beverages: content and safety. Mayo Clinic Proceedings 2010 **85**(11): 1033 – 1041.