



Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

Statement on the Potential Risks from Ergot Alkaloids in the Maternal Diet: Lay Summary

Introduction

1. The Scientific Advisory Committee on Nutrition (SACN) is reviewing the scientific evidence that informs the Government's dietary recommendations for women of childbearing age. As part of that process, the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) was asked to review the risks of toxicity from certain chemicals in the maternal diet. This statement sets out the advice of the COT on whether estimated UK exposures to ergot alkaloids (EAs) have the potential to pose a risk to maternal health by adversely affecting maternal outcomes during pregnancy, childbirth and up to 24 months after delivery. Other chemical contaminants and nutrients will be considered separately. The full scope of the nutrition and maternal health project is available on the COT website.

2. Ergot alkaloids are natural substances produced by certain fungi that can infect crops such as rye, wheat, and barley. They may be present in bread, flour, pasta, and other cereal-based foods due to processing (e.g. milling) of infected crops. Surveys in Europe found that rye products tend to have the highest levels of EAs.

3. Ergot alkaloids affect the nervous system by mimicking neurotransmitters, which are chemical messengers that are naturally produced in the body. Neurotransmitters allow nerve cells (neurons) to communicate with each other and with other tissues in the body. Their functions are essential for regulating mood and

emotions, controlling movement and coordination, regulating sleep and wakefulness, managing automatic body functions (e.g. heart rate, digestion, breathing), influencing learning and memory and responding to stress.

4. Historically, severe poisoning from ergot contamination caused a serious illness known as “St. Anthony’s Fire”, where individuals had bright red swollen skin and a burning sensation in the limbs. This could lead to bacterial skin infections and, eventually, gangrene.

5. Ergot Alkaloids have been used as traditional medicines to control bleeding after childbirth and are used as pharmaceutical agents e.g. to treat central nervous system diseases such as Parkinson’s Disease.

6. Animal studies show that high doses of EAs can interfere with pregnancy by reducing blood flow to the uterus and placenta, affecting foetal growth. They can also reduce milk production by lowering levels of prolactin, a hormone involved in the process of lactation. Data from clinical trials in pregnant women have shown therapeutic effects of EAs by decreasing blood loss and increasing levels of haemoglobin in the blood, but side effects such as an increase in blood pressure and pain after birth were observed. Some human case studies report an association between EA exposure and birth defects, but these occurred at doses much higher than those generally found in food.

7. The European Food Safety Authority (EFSA, 2012) and the Joint Food and Agriculture/World Health Organisation Expert Committee on Food Additives (JECFA, 2021) have both established health-based guidance values (HBGV) for EAs. They each assigned an acute reference dose (ARfD), which is the maximum amount of a chemical that a person can consume in a single meal or over a single day without significant health risks. The COT considered that the evaluation by JECFA, which was based on human endpoints and was more recent than the EFSA assessment, provided the more conservative HBGV. The COT therefore agreed to apply the JECFA ARfD of 0.4 µg/kg for their risk assessment.

8. Based on UK dietary data, estimated intakes of EAs were well below the ARfD

as established by JECFA, even for high level consumers.

9. The COT noted that the assessment was based on limited data, and contamination levels in crops can vary. Environmental factors such as climate change could also increase fungal contamination of crops, including by ergot, and so may increase exposure to EAs. However, on balance, the COT concluded that, compared to the ARfD, current dietary exposure to EAs is not of toxicological concern in pregnant women or up to 24 months after delivery.

10. The full COT statement is available on the COT website: [Statement on the potential risks from ergot alkaloids in the maternal diet - GOV.UK](#)

Lay Summary to COT Statement 2026/01
May 2026