Caffeine intake during pregnancy

Basis for previous advice

- Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT)
  - To advise at the request of government departments on toxic risk to man of chemical substances in food, consumer products and the environment
- 2001 review of reproductive effects of caffeine

New FSA research

- FSA funded research on effects of caffeine in pregnancy
- 2 linked studies

T01032 ‘Determination of maternal caffeine intakes associated with increased risk to the fetus’ (University of Leicester)

T01033 ‘Assessment of caffeine consumption, altered caffeine metabolism and pregnancy outcome’ (University of Leeds)

FSA funded research

Designed to overcome limitations of previous studies

- prospective
- caffeine assessment tool
- frequent recording of information
- all sources of caffeine
- accurate estimation of caffeine content

Fetal Growth Restriction (FGR)

- Primary outcome measure of FSA funded research

defined as

“failure of the baby to attain its growth potential as determined by genetic and environmental factors”

FGR is associated with increased risk of perinatal mortality and morbidity.

FGR correlates with adverse effects in adult life

Results of FSA funded research

- Recorded approx 2500 birth outcomes
- mean caffeine consumption decreased from 238 mg/day to 139 mg/day (first trimester)
- increased to 153 mg/day (third trimester)
- caffeine consumption in pregnancy; tea (62%), coffee (14%) and cola drinks (12%), chocolate (8%)

Results of FSA funded research

- After adjustment for various potential confounders, caffeine consumption was associated with an increased risk of FGR which was statistically significant at intakes of 200-299 mg/day

2008 COT Review

- FSA funded research
- Literature review 2001-2008
  - published studies differed substantially in their design
  - variation in estimation of caffeine content, serving size
  - errors in recall
  - confounding factors, not all studies adjusted for smoking and nausea
  - endpoints studied

COT conclusions

- **new FSA funded research**
  - FGR, robust endpoint
  - decreases in body weight (10-15 g) future health implications
- caffeine consumption
  - data recording accurate
  - recall recent, frequent (confirmation, salivary cotinine measurement)

“contributes usefully to the body of evidence on the relation between caffeine intake and adverse birth outcomes”

COT conclusions

From FSA funded research and other evidence

- “caffeine intake during pregnancy is associated with an increased risk of FGR”
- “not possible to be confident that the association is causal….. but it would be prudent to assume causation”
- “likely that risk is increased in association with intakes in the order of 200 mg per day and perhaps even lower”
- “increase in incidence of FGR from intakes less than 200 mg per day is likely to be less than 2% of infants”

Consumer research

Advice has been tested on consumer focus groups, which included pregnant women

- Balanced consumption of caffeine was key
- Advice needs to be clear and simple
- Advice should not be too restrictive, women want to enjoy pregnancy

New FSA advice

- You should limit the amount of caffeine you have each day, but you don't need to cut it out completely. Caffeine occurs naturally in a range of foods, such as coffee, tea and chocolate, and it's also added to some soft drinks and 'energy' drinks.

- It's important not to have too much caffeine. This is because high levels of caffeine might result in babies having a low birth weight, which increases the risk of some health conditions in the baby and in later life, or possibly even miscarriage. It would be best to try to keep your caffeine intake below 200mg per day.

200 mg of caffeine

- 2 mugs of instant coffee (100mg each)
- 1 mug of brewed coffee (140mg each)
- 2 mugs of tea (75 mg each)
- 5 cans of cola (up to 40mg each)
- 2 cans of 'energy' drink (up to 80mg each)
- 4 (50g) bars of plain chocolate (up to 50 mg each). Caffeine in milk chocolate is about half that of plain chocolate

For example

- a bar of plain chocolate and one mug of brewed coffee,
- or 2 mugs of tea and a can of cola.
- But don’t worry too much if you occasionally have a little more because the risks are likely to be very small.