# Pregnant women at risk from high street coffee shops

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High street coffee chains are unwittingly putting pregnant women at risk due to huge variations in their caffeine content.

Analysis of espresso coffees from 20 shops showed one shop selling coffee with caffeine content six-times higher than the lowest. The research team, from the University of Glasgow, said customers were completely unaware of the actual caffeine level they were consuming.

Their findings are published in the latest edition of the Royal Society of Chemistry journal Food and Function.

Pregnant women are believed to be most at risk. A cup of coffee from Patisserie Francoise was found to contain the most caffeine in the study with a single espresso containing 322mg. A further three shops - University Café, Café Cinnamon and Paperino's - sold coffee containing more than 200mg.

Current advice from the UK Food Standards Agency is for pregnant women to restrict caffeine to below 200mg a day, or four cups of strong coffee each with an assumed caffeine content of 50mg. But without clear labelling, coffee shops around the UK are selling coffees with "substantial variations" in both caffeine and chlorogenic acid (CQA) content.

Of the major chains studied, a cup of Costa coffee was found to have more than three times the caffeine content of a Starbucks coffee -

157mg/serving compared to 51mg/serving respectively. The Starbucks coffee had the smallest amount of caffeine of all the 20 cups analysed.

Professor Alan Crozier, who led the research team, said: "Despite the increasing number of coffee shops on the high street and in airports, there appear to be no recent publications on the caffeine contents of the various types of commercially prepared coffees."

The half-life of caffeine in adults is around five hours, but can be up to 30 hours according to the scientists with extended retention in the body by women taking an oral contraceptive, pregnant women, the developing fetus, young children and those with liver disease.

These groups are more susceptible to the effects of caffeine toxicity.

Researchers analysed 20 coffees all bought in Glasgow and ranging in cup size from 23-70ml. The amount of caffeine a consumer would ingest per cup ranged from 51 to 322mg while the CQA content varied from 24 to 422mg.

"This snap-shot of high street espresso coffees suggests the published assumption that a cup of strong coffee contains 50mg of caffeine may be misleading," said Crozier. "It is evident from our data that the quoted figures for caffeine content of espresso coffee 2008 International Food Information Council review, which are widely cited in the popular press, do not provide a realistic picture."

More than £730m was spent on coffee last year with an annual average of 500g of coffee consumed per person.

Responses to caffeine vary with frequent coffee drinkers suffering headaches when caffeine is withdrawn. At the other extreme, doctors often see patients with a range of non-specific symptoms grouped as

"caffeinism" that are resolved when caffeine is removed from the diet.

"Our data show that one cup of high-caffeine content could cause as much difficulty to these susceptible consumers as six cups of coffee to another," says Crozier. "At the low level, a pregnant woman and others with a need to restrict caffeine consumption might safely drink four cups per day without significantly exceeding the recommended caffeine intake. In marked contrast, at the higher end of the scale, drinking even one cup of espresso will be well in excess of the advised limit of 200mg a day.

"Our data represent only a snap-shot of the caffeine contents of espresso coffees, but the range and scale of the results is sufficient to demonstrate that there is a problem, unlikely to be restricted to Glasgow.

"As many coffee houses prepare larger volume coffees, such as latte and cappuccino, by dilution of a single or double shot of espresso, further study on these products is warranted."

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