

A maternal junk food diet alters development of opioid pathway in the offspring

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Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior, shows that eating a junk-food diet during pregnancy changes the development of the opioid signalling pathway in the baby's brain and permanently alters the way this system operates after birth.

Opioids are chemicals which are released when we eat foods that are high in fat and sugar, and that are responsible for causing the release of another 'feel good' chemical, dopamine. The researchers found that the gene encoding one of the key [endogenous opioids](#), enkephalin, was expressed at a higher level in the offspring of mothers who had consumed a junk [food diet](#) than in the offspring of mothers who ate standard rat feed. This increase in enkephalin, together with previous work done by this research group which showed that an [opioid receptor](#) blocker was less effective at reducing fat and sugar intake in the pups of the [junk-food](#) fed mothers, provides evidence for the first time that the opioid signalling pathway is less sensitive in junk-food exposed offspring.

Being less sensitive to opioids means that individuals whose mothers eat excessive quantities of junk-food during pregnancy and breastfeeding, would have to eat more junk foods get the same 'feel good' response, and this would make them more likely to over consume these high-fat, high-sugar foods. Jessica Gugusheff from the FoodPlus research centre at the University of Adelaide, the graduate student leading this research, says

that "the results of this study will eventually permit us to better inform pregnant women about the enduring effect their diet has on the development of their child's lifelong food preferences and risk of negative metabolic outcomes."

Provided by Society for the Study of Ingestive Behavior

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