

Food quality can re-wire young appetite control

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A University of Alberta researcher has discovered evidence that suggests the part of our brain that controls appetite changes along with our diets during infancy - a fact that could lead to a greater understanding of childhood obesity.

William Colmers, a pharmacology professor and AHFMR Medical Scientist, monitored brain signals in rats in an effort to discover if appetite-control mechanisms in the brain change between the time a rat is weaned and the time it begins to forage for its own food.

His findings reveal, for the first time, that the area of the brain that tells us if we are hungry or full is 'plastic' - that it adapts to changing food sources at least once in our lives.

Colmers and his team made the discovery by measuring the sensitivity of certain types of brain cells to hormones that tell us we're hungry and hormones that tell us when to stop eating. At the age of about three weeks, some brain cells became markedly less sensitive to the hormone that tells them to eat.

"When you're a baby, all you need to know is that you're full, because the quality of the food is a given. You're eating mother's milk. It's all the same," said Colmers. "But when they start to forage, they have to start assessing the quality of the food they are eating because they need to know what they are full on; it's a different thing from being full on mother's milk."

That's where sensitivity to the 'stop-eating' hormone comes into play. Colmers says the research results suggest that the hormone "is involved in assessing the quality of the food you've eaten."

"This suggests that at the time of weaning there is a reorganization of the brain that allows you to assess the quality of the food you're eating as you begin to supplement your diet of mother's milk with other foods," said Colmers.

"The important implication of this is that this area of the brain is plastic, that it can change with time - the fundamentals change with time, and it means that at least at one point in your life it has the ability to change with the environment."

"That means appetite control might indeed be vulnerable to changes in the environment. It plays into the whole story about childhood obesity."

Results of the study are published in the current edition of the journal *Neuron*.

Colmers' research is funded by the Alberta Heritage Foundation for Medical Research and the Canadian Institutes of Health Research through a new emerging team grant -- Colmers leads the neurobiology of obesity research team.

Source: University of Alberta

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