Are You What You Eat or What Your Mother Ate or Both?

Stephen J. Freedland

Abstract

A high-fat high-sugar (HF-HS) diet promotes cancer development and progression. However, does the timing of diet matter? This is an important question with profound public health relevance. By exposing mice to a HF-HS diet either through feeding to a pregnant mother or nursing mother or after weaning and then chemically inducing breast cancer, the authors found the most crucial time for breast cancer risk was after weaning, while a HF-HS in utero diet actually slowed tumor development. Understanding early-life events provides valuable insight for later life events and proves it is never too early to start preventing disease.


See related article by Lambertz, p. 553-62.
the groups that did the best were either restricted postweaning or fed the same diet the whole time (i.e., the HF-HS diet throughout had intermediate to slightly slower tumor growth than the rest). The implication is that in the absence of being able to consistently restrict diet postweaning (the best scenario), there may be harms to a yo-yo diet (where weight goes up and down due to periods of intermittent dieting mixed with an obesogenic diet). Fourth, the finding that an HF-HS diet during gestation reduced tumor growth is unexpected. Why such an observation would be seen is unclear and certainly requires further study. Fifth, a key implication is that examining adult diets and cancer risk may miss much of the time window during which cancer risk can be influenced. This may explain the often inconsistent and null findings in epidemiologic studies of diet and cancer (5, 6). Importantly, this does not mean diet is not important, just that we do not know when to look.

In summary, although what your mother ate when she was pregnant and nursing may matter, what you eat matters too. It is hoped that with future research aimed at understanding the molecular effects of diet at various time points throughout life, we can best design diets and interventions to reduce and ultimately prevent cancer. Studies like this help answer some questions, but like all good studies, raise more questions than they answer.

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