

Researchers find diet-induced obesity accelerates leukemia

September 7 2010

The first study to demonstrate that obesity can directly accelerate the progression of acute lymphoblastic leukemia (ALL) has been conducted at The Saban Research Institute of Childrens Hospital Los Angeles and will be published in *Cancer Prevention Research*, on October 5, 2010. Obesity has been associated with an increased incidence of many cancers, including leukemia, but it has been unknown whether the increase in incidence was a direct effect of obesity or associated with genetic, lifestyle, health, or socio-economic factors.

"Given the high prevalence of [obesity](#) in our society, we felt it was critical to determine if obesity actually caused the increased incidence of leukemia and not some other associated exposure," explains Steven D. Mittelman, MD, PhD, a pediatric endocrinologist who led the study.

Dr. Mittelman and his colleagues used a high-fat diet to induce obesity in two mouse models of ALL. Mice were randomized to a high-fat or a control diet. The investigators found that obesity increased the risk of ALL in both models, particularly in older mice. This observation was consistent with the type of cumulative effect seen with other exposure-related cancers, such as [lung cancer](#) related to smoking and [breast cancer](#) resulting from increased estrogen exposure. Observing the difference in older animals also agreed with the other obesity-related effects from cumulative exposure such as heart disease, diabetes, and arthritis.

"Our findings are consistent with epidemiological data that show a higher incidence of leukemia in obese adults and suggests that these

observations are actually due to obesity, and not some associated genetic, socio-economic, or lifestyle factor," concluded Dr. Mittelman, who is also an Assistant Professor of Pediatrics and Physiology & Biophysics at the Keck School of Medicine of the University of Southern California. "These data imply that some hormone or factor in overweight individuals, perhaps produced by fat tissue itself, may signal leukemia cells to grow and divide. Since [leukemia](#) is the most common type of childhood cancer, understanding how obesity may increase its incidence could have important public health implications."

Provided by Children's Hospital Los Angeles

Citation: Researchers find diet-induced obesity accelerates leukemia (2010, September 7) retrieved 9 April 2024 from <https://medicalxpress.com/news/2010-09-diet-induced-obesity-leukemia.html>

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