

Study helps clarify link between high-fat diet and type 2 diabetes

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A diet high in saturated fat is a key contributor to type 2 diabetes, a major health threat worldwide. Several decades ago scientists noticed that people with type 2 diabetes have overly active immune responses, leaving their bodies rife with inflammatory chemicals.

In addition, people who acquire the disease are typically obese and are resistant to insulin, the hormone that removes sugar from the blood and stores it as energy.

For years no one has known exactly how the three characteristics are related. But a handful of studies suggest that they are inextricably linked.

New research from the University of North Carolina at Chapel Hill School of Medicine adds clarity to the connection. The study published online April 10 in the journal *Nature Immunology* finds that saturated fatty acids but not the unsaturated type can activate [immune cells](#) to produce an inflammatory protein, called interleukin-1beta.

"The cellular path that mediates fatty acid metabolism is also the one that causes interleukin-1beta production," says senior study co-author Jenny Y. Ting, PhD, William Kenan Rand Professor in the Department of Microbiology and Immunology.

"Interleukin-1beta then acts on tissues and organs such as the liver, muscle and fat (adipose) to turn off their response to insulin, making them insulin resistant. As a result, activation of this pathway by fatty

acid can lead to [insulin resistance](#) and [type 2 diabetes](#) symptoms." Ting is also a member of the UNC Lineberger Comprehensive Cancer Center, and the UNC [Inflammatory Diseases](#) Institute.

Provided by University of North Carolina School of Medicine

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