

# Study links 'hygiene hypothesis' to diabetes prevention

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A research study funded by JDRF suggests that a common intestinal bacteria may provide some protection from developing type 1 diabetes. The findings provide an important step towards understanding how and why type 1 diabetes develops in people, and may lead to potential cures.

The study, reported this week in *Nature Magazine*, lends further support to the "hygiene hypothesis," that exposure to an appropriate amount and composition of bacteria may be important to living a healthy life, and that susceptibility to type 1 diabetes and other autoimmune disorders may actually be caused by a lack of exposure to certain parasites and microbes.

In the study, researchers at Yale University and the University of Chicago found that exposure to certain bacteria will trigger an immune system response in mice. That response is believed to be what prevents autoimmune disorders -- conditions where the immune system attacks healthy cells in the body. In people with type 1 diabetes, the immune system attacks the beta cells in the pancreas, stopping a person's ability to detect glucose and produce insulin. For the purposes of the study, the bacteria used were harmless microbes typically found in the human intestine. The scientists suggest that safe, measured exposure to certain bacteria may lower the risk of immune disorders.

"This study outcome gives us a new avenue to explore", said JDRF Executive Vice President of Research, Richard A. Insel, MD. "And, with type 1 diabetes in the U.S. and many countries around the world at about

a 3% annual rate, every lead is significant. The research gives impetus to better understanding how the bacterial flora in our body influences host immune defenses and responses that provide resistance to the development of type 1 diabetes. This understanding may provide new therapeutic approaches to prevention."

For the study, teams led by Li Wen at Yale and Alexander V. Chervonsky at the University of Chicago used mice that under normal conditions, would not develop diabetes. If raised in a germ-free environment, however, the mice developed diabetes. But mice that were exposed to common intestinal bacteria maintained a lower risk for the disease.

Source: Juvenile Diabetes Research Foundation International

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