High Blood Sugar Could Damage DNA, Increasing the Risk for Cancer

A recent study sheds new light on the links between glucose, diabetes and cancer.

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Studies have long associated diabetes with an increased risk for cancer—though the link still isn't well understood. Now, a new study on mice with high blood sugar may help explain how, signaling a potential boon for future treatments.

High blood sugar levels, the researchers hypothesized, may promote cancer development by damaging DNA. The study showed that too much glucose in the blood makes DNA strands in the body more prone to breaking, making them far less likely to be repaired. Over time, this breakage could lead to dangerous mutations, the leading cause of most cancers, potentially increasing peoples' risk for the disease.

The research was presented at the American Chemical Society Fall 2019 Meeting and Exposition and has not yet been published in a peer-reviewed journal. It's also important to note that the study was done in a lab, on mice with diabetes, which means the results may not apply to humans. However, study authors said their findings could provide new clues as to the link between the two diseases.

"As the incidence of diabetes continues to rise, the cancer rate will likely increase as well," study coauthor John Termini, PhD, a professor in the department of molecular medicine at City of Hope National Medical Center in Duarte, California, said in a press release. What's more, "In an ironic twist of fate, some cancer treatments increase the risk of diabetes," Termini added. For example, radiation, steroids and some kinds of chemotherapy all are known to increase diabetes risk. "That in turn increases the risk of cancer," he continued. "The destructive machine feeds itself."

In fact, experts already know that type 1 and type 2 diabetes are significantly associated with an increased risk for cancer. Study authors say they hope their research will one day lead to the development of new drugs to aid DNA repair for people with diabetes, while limiting genomic instability.

Fortunately, some existing diabetes treatments could help reduce cancer risk. For example, metformin, a prescription medication used to treat type 2 diabetes, helps lower blood glucose levels and stimulate DNA repair, noted study authors. Keeping diabetes and high blood sugar

under control could also help reduce cancer risk.

To read the City of Hope press release, click here.

For further reading, check out “Diabetes Increases Cancer Risk, Especially for Women”
