

Chromium picolinate may lessen inflammation in diabetic nephropathy

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Taking chromium picolinate may help lessen inflammation associated with diabetic nephropathy (kidney disease), say researchers at the Medical College of Georgia in Augusta. In a study comparing diabetic mice treated with chromium picolinate with those that received placebo, the researchers found that mice who received the supplement had lower levels of albuminuria (protein in the urine), an indication of kidney disease.

To arrive at their conclusions, the researchers compared three groups of mice, one lean, healthy group and two groups genetically engineered to be obese and have [diabetes](#). When the mice were 6 weeks old, the researchers separated them according to treatment plan. The healthy mice and one group of [diabetic mice](#), the untreated diabetic group, were fed a regular rodent diet. The remaining group, the treated diabetic group, were fed a diet enriched with [chromium](#) picolinate.

Over the course of 6 months, the researchers measured glycemic control and albuminuria in all three groups. The untreated diabetic mice excreted nearly 10 times more albumin than the db/m mice, which was to be expected. However, the treated diabetic mice, who were fed the diet with chromium picolinate, excreted about half as much albumin compared to their untreated diabetic counterparts.

At the end of 6 months, the mice were euthanized and the researchers studied tissue samples from the mice's kidneys. They found that the untreated diabetic mice had marked immunostaining for interleukin 6

(IL-6) and interleukin 17 (IL-17), two [cytokines](#) associated with [inflammation](#). These mice also had moderate immunostaining for indolamine 2,3-dioxygenase (IDO), an immunoregulatory enzyme that modulates the production of IL-6 and IL-17. However, the treated diabetic mice had intense immunostaining for IDO but reduced IL-6 and IL-17 compared to the untreated diabetic group. The implication is that the chromium picolinate may have reduced inflammation in the treated diabetic group by affecting IDO, IL-6, and IL-7.

Mahmood Mozaffari, DMD, PhD, professor in the Medical College of Georgia Department of Oral Biology and lead author of the study, noted that the results are preliminary and that further studies are necessary to tease out the effects of chromium picolinate. He is particularly interested in the relationship between IDO and chromium picolinate because IDO is involved in the metabolism of tryptophan, an amino acid, and one of the by-products of that metabolism is picolinic acid.

"This clearly raises an important question for us as to whether our observations are related to the provision of picolinic acid from the chromium picolinate or whether the formulation [chromium picolinate], in and of itself, is mediating the effects."

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