

Chromium Picolinate and Biotin Combination Improves Blood Sugar Control in People with Type 2 Diabetes Mellitus

ABSTRACT

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Background and Aims: The combination of the nutritional agents chromium picolinate and biotin (CrP+B) have been previously shown to provide beneficial effects in controlling blood glucose and cholesterol levels in well-controlled animal and human studies. The combination may work by increasing insulin sensitivity in skeletal muscle cells. The purpose of this study was to test if CrP+B could reduce elevated HbA1c levels, in a real-life uncontrolled environment, in people with type 2 diabetes mellitus who had previously failed to adequately respond to antihyperglycemic medications.

Materials and Methods: Thirty subjects with type 2 diabetes were enrolled in this 12-week open-label study. These subjects had glycosylated hemoglobin (HbA1c) levels >7%, despite taking oral antihyperglycemic drugs for at least the past 6 months. Each day, subjects received a combination of chromium (600 mcg) and biotin (300 mcg), in addition to continuing to take stable doses of their prescription oral medications. HbA1c levels were measured prior to and after the 12-week study.

Results: The mean HbA1c level prior to the study was 8.5% (SD \pm 1.6). Concomitant oral antihyperglycemic drugs included biguanides and sulfonylureas, with most subjects taking combination therapy. After 12 weeks of taking the combination of chromium (as chromium picolinate) and biotin, HbA1c levels were significantly reduced by 1.1% (P<0.01). Subjects with an HbA1c >8% (n=18) had a greater response (-1.8%, P<0.001), with a reduction in mean HbA1c levels from 9.3% (SD \pm 1.7) to 7.5% (SD \pm 1.2). The extent of reduction in HbA1c levels was correlated with baseline HbA1c levels, with the greatest improvements seen in those subjects with the highest baseline HbA1c levels (P<0.0001). There were no reports of hypoglycemia.

Conclusion: The results of this study suggests that people with type 2 diabetes mellitus can significantly improve their blood sugar control by taking a combination of chromium picolinate and biotin. The improvement in blood sugar control was an additional improvement above that obtained with oral antihyperglycemic medications.

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