Chromium picolinate supplementation attenuates body weight gain and increases insulin sensitivity in subjects with type 2 diabetes.


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OBJECTIVE: Chromium picolinate (CrPic) supplementation has been suggested to improve glycemia, but there are conflicting reports on efficacy. We sought to determine the effect of CrPic on insulin sensitivity, glycemic control, and body composition in subjects with type 2 diabetes. RESEARCH DESIGN AND METHODS: Thirty-seven subjects with type 2 diabetes were evaluated. After baseline, subjects were placed on a sulfonylurea (glipizide gastrointestinal therapeutic system 5 mg/day) with placebo for 3 months. Subjects were then randomized in a double-blind fashion to receive either the sulfonylurea plus placebo (n = 12) or the sulfonylurea plus 1,000 mug Cr as CrPic (n = 17) for 6 months. Body composition, insulin sensitivity, and glycemic control were determined at baseline, end of the 3-month single-blind placebo phase, and end of study. RESULTS: Subjects randomized to sulfonylurea/placebo, as opposed to those randomized to sulfonylurea/CrPic, had a significant increase in body weight (2.2 kg, P < 0.001 vs. 0.9 kg, P = 0.11), percent body fat (1.17%, P < 0.001 vs. 0.12%, P = 0.7), and total abdominal fat (32.5 cm(2), P < 0.05 vs. 12.2 cm(2), P < 0.10) from baseline. Subjects randomized to sulfonylurea/CrPic had significant improvements in insulin sensitivity corrected for fat-free mass (28.8, P < 0.05 vs. 15.9, P = 0.4), GHb (-1.16%, P < 0.005 vs. -0.4%, P = 0.3), and free fatty acids (-0.2 mmol/l, P < 0.001 vs. -0.12 mmol/l, P < 0.03) as opposed to sulfonylurea/placebo. CONCLUSIONS: This study demonstrates that CrPic supplementation in subjects with type 2 diabetes who are taking sulfonylurea agents significantly improves insulin sensitivity and glucose control. Further, CrPic supplementation significantly attenuated body weight gain and visceral fat accumulation compared with the placebo group.

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