Chromium picolinate does not produce chromosome damage.


Source

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Abstract

Chromium picolinate (CrPic) is used as a dietary supplement and has beneficial effects in reducing diabetes risk factors. The present study evaluated the cytogenetic effects of CrPic in bone marrow cells of Sprague-Dawley rats (5 animals/sex/group). Test animals were dosed orally with 33, 250 or 2000 mg/kg of CrPic, which corresponded to doses of 4.1, 30.8 and 246 mg/kg of chromium. The lowest dose of CrPic, 33 mg/kg is estimated to be the human equivalent for a 50 kg person (200 mcg Cr). The animals were dosed once, and sacrificed either 18 or 42 hours (h) later. The mitotic index was determined for each rat. Metaphase cells (50 or 100/rats) were examined for interstitial deletions, chromatid and chromosome gap, breaks or other anomalies. The average percentage of damaged cells at 18 h in vehicle treated males and females were 1.2% and 0.6%, respectively. The mean values at 18 h for doses of 33, 250 and 2000 mg/kg, were 0.4%, 0.8%, 0.4% for males and 0.6%, 0.2% and 0.6% for females, respectively. At 42 h, the mean values for vehicle treated males and females were 0.4% and 0.2%, respectively. For doses of 33, 250 and 2000 mg/kg at 42 h the average percent damage was 14%, 0.8% and 0.4% for males and 0.2%, 0.2% and 0.0% for females, respectively. None of these values were statistically increased compared to the vehicle controls. The positive control Cyclophosphamide (CPM) induced a significant increase in chromosomal damage at 18 h averaging 30% in males and 37% in females, respectively (p<0.001). In the current study CrPic did not induce chromosomal damage in bone marrow cells at single doses of 33, 250 and 2000 mg/kg of body weight and thus there was no indication of any toxicity of CrPic.

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