Chromosome Damage in the Lab Is Tied to a Chromium Supplement

By JANE E. BRODY

Chromium picolinate, a dietary supplement popular among fitness buffs and people trying to lose weight, has been shown in tests done on cells grown in the laboratory to cause severe damage to chromosomes. Although no animal studies of the supplement cancer-causing potential have yet been done, the genetic changes observed in the laboratory suggest that this widely sold supplement could be carcinogenic.

Chromium is being promoted as an aid to losing weight without having to exert willpower and to losing fat without losing lean body mass. It is said to curb the appetite and favor the buildup of muscle tissue, though neither of these claims has been tested in a systematic, scientific way.

As an essential nutrient needed by the body in trace amounts, chromium is critical to the workings of insulin and is therefore involved in the metabolism of the blood sugar glucose and in the metabolism of fat. A deficiency of chromium may be a factor in some cases of adult-onset diabetes.

Chromium is found in a variety of foods, including liver, cheese, whole-grain breads and cereals, dried beans, peanuts, brewer's yeast, apples and vegetables like broccoli and mushrooms. The recommended daily intake for adults is only 50 to 200 micrograms, yet many people fail to consume even this small amount. chromium picolinate, the most popular **of** the chromium supplements, is widely sold in health food stores, supermarkets and pharmacies that carry dietary supplements. In the new study, researchers at Dartmouth College and George Washington University Medical Center tested the effects Of chromium picolinate on cells taken from the ovary of a Chinese hamster. When exposed to reasonable doses of chromium picolinate, the cells suffered chromosomal damage that ranged from 3 times to 18 times the amount that occurred in cells exposed to other chromium compounds. Such damage is considered an indicator of cancer-causing potential.

Picolinate is widely touted for dieters and fitness buffs.

One of the researchers, Dr. Steven R. Patierno, noted that when performing its role as an essential mineral, chromium normally acted outside of cells and is generally not absorbed into cells. But when chromium is combined with an organic substance like picolinate, he said, it is able to get inside cells, where it could get to the cells' genetic machinery. He and his colleagues have found that picolinate by itself can damage chromosomes and may aid and abet the damage caused by chromium.

In a report to be published in December in The Faseb Journal, the publication of the Federation of American Society of Experimental Biology, the researchers, Diane M. Stearns and Karen E. Wetterhahn of Dartmouth and John P. Wise and Dr. Patierno of George Washington, cautioned: 'Although chromium supplements have been assumed safe for human use, this study demonstrates that further investigations are warranted to verify their safety. Chromium supplements cannot be assumed safe for human use in the absence of testing."