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What are the effects of Manganese Tetrakis Benzoic Acid Porphyrin (MnTBAP) on Adiposity and Insulin Sensitivity in Mice fed a High Fat Diet?

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Abstract

Introduction: Recent statistics indicate that the United States suffers from one of the highest obesity rates in the world (7). Health implications brought on by obesity are becoming more common as well, and one of the major conditions associated with obesity is Type 2 diabetes (7). Currently, there are various treatment options for improving insulin action, however there are few viable treatment options to reduce adiposity (2). Therefore, it is essential to develop novel interventions for obesity that reduce adiposity. Porphyrin molecules may play a critical role in the treatment of obesity due to its heme-like structure and ability to improve insulin action (9). **Methods:** To test the hypothesis that manganese tetrakis benzoic acid porphyrin (MnTBAP) improves insulin sensitivity and reduces adiposity, 26 male C57/B6 mice were randomly assigned to a control diet (CON, n =14) or a high-fat diet (HFD, n =12) for four months, and then randomly assigned to a treatment (MnTBAP) or a 2% bicarbonate buffer (vehicle) group. Insulin sensitivity, body weight, and caloric intake were measured during five weeks of treatment or vehicle injections. **Conclusion:** MnTBAP was found to improve insulin sensitivity and reduce adiposity, suggesting that MnTBAP may be a potential anti-obesity target.