

*Consumer Abstract*

In the United States, a substantial percentage of adults have dietary intakes of copper that are less than the recommended dietary allowance. This is of concern given that in animal models, low levels of copper during pregnancy can lead to birth defects. Copper is a key player in the body's antioxidant defense system. When copper levels are low, the activity of copper-zinc superoxide dismutase, a protein that helps protect the body against oxidative damage, decreases, and body tissues are at an increased risk of being injured by oxygen and nitrogen free radicals, unstable molecules that can harm cells. This damage is thought to contribute to the pathology of a number of diseases including Alzheimer's disease, Parkinson's disease, multiple sclerosis, and traumatic brain injury. Dr. Uriu-Adams' research group plans to use a special mouse model to determine if dietary or genetic copper deficiency during pregnancy can negatively impact brain development and if these changes last until early adulthood. The findings from this work will provide researchers with a better understanding of the effects of copper deficiency on fetal development and copper deficiency-induced tissue pathology.