Copper: Essential Nutrient or Hidden Toxin?

Where It's Found

- Copper IUDs
- Tap water (from copper plumbing)
- Copper cookware and foil packaging
- Pesticide-treated produce (e.g., grapes)
- Dental appliances with copper alloys
- Vitamins (especially if high in zinc)

Too Much Copper May Cause

- Brain fog, mood swings, neurological symptoms
- Hormonal imbalances (linked to low ceruloplasmin)
- Fatigue, liver/kidney strain, increased Alzheimer's risk

Too Little Copper May Cause

- Anemia unresponsive to iron
- Numbness, tingling, weakness
- Immune dysfunction
- More common in celiac disease, malabsorption, or with excess zinc

Genetic and Hormonal Considerations

- **Wilson's Disease**: Copper buildup in liver and brain
- **Menkes Disease**: Severe copper deficiency in infants
- High estrogen (pregnancy, birth control) and inflammation may falsely elevate copper levels

How to Test for Copper Imbalance

- Serum copper + ceruloplasmin to estimate free (toxic) copper
- 24-hour urine copper for exposure or diagnosing Wilson's
- Consider testing tap water if using copper pipes

Treatment Options

- **High Copper**:
    - Zinc (75–150 mg/day in divided doses, away from food)
    - Vegetarian diets may reduce copper absorption
    - Chelation therapy (DMSA) under supervision for Wilson's
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- **Low Copper**:
    - Oral or IV copper supplements
    - Address underlying gut/malabsorption issues
    - Retest B12 and iron if anemia persists

Case Example

A 60-year-old man misdiagnosed with B12 deficiency was found to have zero copper. After IV then oral copper and a gluten-free diet, symptoms resolved.