**Urinary porphyrin excretion in neurotypical and autistic children.**

[Woods JS](https://www.ncbi.nlm.nih.gov/pubmed/?term=Woods%20JS%5BAuthor%5D&cauthor=true&cauthor_uid=20576582)1, [Armel SE](https://www.ncbi.nlm.nih.gov/pubmed/?term=Armel%20SE%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Fulton DI](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fulton%20DI%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Allen J](https://www.ncbi.nlm.nih.gov/pubmed/?term=Allen%20J%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Wessels K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wessels%20K%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Simmonds PL](https://www.ncbi.nlm.nih.gov/pubmed/?term=Simmonds%20PL%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Granpeesheh D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Granpeesheh%20D%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Mumper E](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mumper%20E%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Bradstreet JJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bradstreet%20JJ%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Echeverria D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Echeverria%20D%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Heyer NJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Heyer%20NJ%5BAuthor%5D&cauthor=true&cauthor_uid=20576582), [Rooney JP](https://www.ncbi.nlm.nih.gov/pubmed/?term=Rooney%20JP%5BAuthor%5D&cauthor=true&cauthor_uid=20576582).

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed/20576582)

* 1Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, Washington 98105, USA. jwoods@u.washington.edu

**Abstract**

**BACKGROUND:**

Increased urinary concentrations of pentacarboxyl-, precopro- and copro-porphyrins have been associated with prolonged mercury (Hg) exposure in adults, and comparable increases have been attributed to Hg exposure in children with autism (AU).

**OBJECTIVES:**

This study was designed to measure and compare urinary porphyrin concentrations in neurotypical (NT) children and same-age children with autism, and to examine the association between porphyrin levels and past or current Hg exposure in children with autism.

**METHODS:**

This exploratory study enrolled 278 children 2-12 years of age. We evaluated three groups: AU, pervasive developmental disorder-not otherwise specified (PDD-NOS), and NT. Mothers/caregivers provided information at enrollment regarding medical, dental, and dietary exposures. Urine samples from all children were acquired for analyses of porphyrin, creatinine, and Hg. Differences between groups for mean porphyrin and Hg levels were evaluated. Logistic regression analysis was conducted to determine whether porphyrin levels were associated with increased risk of autism.

**RESULTS:**

Mean urinary porphyrin concentrations are naturally high in young children and decline by as much as 2.5-fold between 2 and 12 years of age. Elevated copro- (p < 0.009), hexacarboxyl- (p < 0.01) and pentacarboxyl- (p < 0.001) porphyrin concentrations were significantly associated with AU but not with PDD-NOS. No differences were found between NT and AU in urinary Hg levels or in past Hg exposure as determined by fish consumption, number of dental amalgam fillings, or vaccines received.

**CONCLUSIONS:**

These findings identify disordered porphyrin metabolism as a salient characteristic of autism. Hg exposures were comparable between diagnostic groups, and a porphyrin pattern consistent with that seen in Hg-exposed adults was not apparent.