

## AAN 69<sup>th</sup> ANNUAL MEETING ABSTRACT

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**Abstract Title:** Fish Consumption, Mercury Levels, and Amyotrophic Lateral Sclerosis (ALS)

**Press Release Title:** Mercury in Fish, Seafood May Be Linked to Higher Risk of ALS

**Objective:** To assess in a case-control study the risk of ALS associated with mercury intake via fish / seafood consumption, and with mercury intake measured as concentration in nails.

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**Background:** Mercury is a neurotoxic metal that has been found in some studies to be a risk factor for amyotrophic lateral sclerosis (ALS). The primary source of US population exposure to mercury is via consumption of methylmercury-contaminated fish.

**Design/Methods:** We used questionnaires to assess fish and seafood consumption in a case-control study of ALS (N=294 cases, 224 controls). We estimated annual methylmercury exposure among fish/ seafood consumers by cross-referencing self-reported consumption with the corresponding fish fillet mean methylmercury concentrations. We used inductively coupled plasma mass spectrometry to measure levels of mercury in toenail samples obtained from ALS patients, compared to those of controls without neurodegenerative illness. Odds ratios (OR) were adjusted for age and gender.

**Results:** Consumption of the fish caught was associated with increased risk of ALS (OR 2.2 95%CI 1.1-5.0), though angling per se was not (OR 1.1 95%CI 0.7-1.7). Among patients regularly consuming fish, those in the top quartile for estimated annual methylmercury intake were at a 2-fold increased risk of ALS, compared to those with lower levels. Using toenail mercury concentrations as a biomarker of exposure, there was a statistically significant increased ALS risk associated with toenail mercury level (P=0.036).

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**Conclusions:** These data demonstrate that the risk of ALS is associated with fish and seafood consumption. Both estimated fish-related mercury intake and biomarker data suggest mercury exposure is a risk factor for ALS.

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