

## Fish Consumption and Hair Mercury Levels in Washington State

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*Abstract:* Background: Mercury, a neurotoxin, is increasing in the environment where it accumulates in fish. Eating fish containing mercury is the primary exposure route for the general public in Washington State. The Washington Behavioral Risk Factor Surveillance System (BRFSS) periodically collects fish consumption information among adults. Two recent studies also assessed fish consumption and measured mercury in hair. Methods: To examine differences in reported fish consumption between questions on the BRFSS telephone survey and a self-administered food frequency questionnaire (FFQ), the Women's Diet Survey (WDS) recruited 799 female BRFSS participants ages 18-44. Participants provided fish consumption information via telephone for the BRFSS questions and completed an FFQ; 412 provided hair samples. The Washington Adult Health Survey (WAHS) used a three-stage cluster design to randomly sample adults ages 25 and older. As part of WAHS, 672 participants completed the same FFQ as in WDS and 242 – either women ages 25-44 or adults over age 59 – provided hair samples. Results: The WDS showed agreement between the telephone survey and the FFQ for reported mean numbers of both store-bought and sport-caught fish meals, and proportions of women eating specific types of store-bought fish. Similar to national estimates, 5.3% of hair samples had mercury levels  $\geq 1$  ppm, exceeding the EPA recommended intake for methyl mercury. Eating certain types of fish was positively associated with mercury hair levels. Information from WAHS will provide additional perspective on these issues. Conclusions: Based on WDS, women of child-bearing age provide the same information on BRFSS telephone survey questions and a more detailed FFQ. Knowing what types of fish women eat may be a good indicator of high mercury exposure.