

S01-01 Mercury exposure from fish consumption within the Japanese and

Korean communities

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Public health guidance pertaining to fish consumption requires that we be cognizant of the health concerns associated with eating contaminated fish and the nutritional benefits obtained from fish consumption. In doing so, a need exists for an improved understanding of the extent of contamination within various fish species consumed by populations of concern and the extent of exposure to contamination by these populations while considering the benefits of fish consumption to these populations. As part of the Arsenic Mercury Intake Biometric Study involving the Japanese and Korean communities, we obtained fish and nutrient intake data, determined mercury (Hg) fish tissue concentrations for various species consumed, analyzed hair for Hg levels of study participants and examined the intake of 2 n-3 long-chain fatty acids; eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). This longitudinal study (n = 214) included 106 Japanese and 108 Korean women of childbearing age. Hair Hg levels for the two populations and weight-normalized, species-specific, individual-consumption pattern data that estimated Hg intake levels were compared with published National Health and Nutrition Examination Survey (NHANES) data. Sensitivity analyses and population-specific probabilistic assessments of exposure were conducted. The estimated Hg intake levels for the Japanese (0.09 microg/kg/d) and Koreans (0.05 microg/kg/d) were above the NHANES estimates (0.02 microg/kg/d), as were the hair Hg levels (1.23, 0.61, 0.2 ppm, respectively). Results indicate that (1) there are significant differences between the fish-species-consumption behavior of these two populations; (2) even when fish-consumption rates are equal between two populations, Hg intakes between them can vary significantly; and (3) basing fish consumption guidelines on contaminants concentrations alone can have the unintended consequence of causing a portion of the population to have inadequate intake of required nutrients. The population and Hg intake differences present public health challenges when attempting to provide fish consumption guidance. Further, public health goals may be better served if nutritional elements and contaminant concerns are quantitatively incorporated into fish consumption guidelines.

Keywords: Mercury; Fish; Japanese; Korean