Children's daily exposure to polychlorinated biphenyls from dietary supplements containing fish oils.


Abstract

In children, omega-3 polyunsaturated fatty acids (PUFAs) may elicit a suite of health benefits including enhancement of cognitive development. Subsequently, dietary supplements containing omega-3 PUFAs have become increasingly popular. Often, the largest source of beneficial PUFAs in these supplements is fish oil, which may contain significant levels of contaminants such as polychlorinated biphenyls (PCBs). The objectives of this study were to evaluate congener-specific PCB concentrations in 13 over-the-counter children's dietary supplements containing fish oils/powders and assess potential PCB exposures through ingestion of these products on a daily basis. Every supplement analysed contained PCBs, with a mean concentration of 9 ± 8 ng PCBs/g supplement. When following serving size suggestions, mean daily exposure values ranged from 2.5 to 50.3 ng PCBs/day. Daily exposures for children's supplements were significantly lower than those previously reported for adult supplements and may be explained, in part, by the variability in the amount of fish oil (and PUFA content) in a serving size. Based on this study, factors such as fish oil purification methods (e.g., molecular distillation) and the trophic level of the fish species used to make the fish oil cannot be used as indicators of PCB levels within children's supplements. Fish supplements may decrease or increase daily PCB exposure compared with ingestion of fresh fish. However, eating fish high in omega-3 PUFAs and low in PCBs may reduce PCB exposure compared with daily supplementation with fish oils for some products studied.

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