



Effect of farmed salmon consumption on circulating serum levels of organochlorine pollutants (PCBs, DDE and HCB).

Authors: Skuladottir M.

Background

Elevated levels of organochlorine pollutants in farmed Atlantic salmon have previously been reported. How frequent consumption influences circulating serum levels shortly after consumption in humans is however not clear. The aim of this study was to examine the association between frequent consumption of farmed salmon over 8 week period and circulating serum concentrations of organochlorine pollutants.

Methods

From a randomized controlled dietary intervention trial (Seafood Plus) of 8-week duration. A total of 20 participants were selected from the control group (not consuming seafood) and 20 from the salmon group (consuming farmed Atlantic Salmon 3 times (150g) a week). Serum levels of PCB, pp'-DDE and HCB were measured baseline and endpoint in all samples.

Results

At endpoint, greater increase in concentrations were seen in the salmon group versus the control group for all measured congeners of PCB except for PCB-118. Higher concentrations were also observed for HCB and pp'-DDE. For the sum of PCBs the increase was 0.33 ng/ml serum (CL: -0.43; 1.09) higher in the salmon group or 18%. For HCB the increase was 0.09 ng/ml serum (CL: -0.03; 0.22) or 29%. Due to few number of study participants non of these differences reached formal significance.

Table 1. Difference in serum levels of PCB, HCB, DDE (ng/ml serum) between control group and salmon group.

	Unadjusted mean change				Adjusted mean change ^b				% change ^c
	β^a	95% CI		p	β^a	95% CI		p	
PCBsum	0.42	-0.35	1.19	0.27	0.33	-0.43	1.09	0.38	18
PCB118	-0.01	-0.07	0.05	0.71	-0.01	-0.06	0.05	0.80	-13
PCB138	0.13	-0.01	0.26	0.06	0.11	-0.02	0.24	0.09	50
PCB153	0.11	-0.15	0.36	0.40	0.07	-0.18	0.32	0.57	10
PCB156	0.01	-0.01	0.04	0.18	0.01	-0.01	0.03	0.29	25
PCB170	0.04	-0.03	0.12	0.26	0.03	-0.04	0.11	0.37	16
PCB180	0.13	-0.16	0.43	0.26	0.13	-0.16	0.43	0.36	20
HCB	0.11	-0.01	0.24	0.08	0.09	-0.03	0.22	0.13	29
pp'-DDE	0.13	-0.39	0.65	0.62	0.06	-0.44	0.56	0.82	6

^aMean change in salmon group with control group as a reference. ^b Adjusted for fatmass baseline, change in fatmass and age. ^c Difference between groups compared to mean baseline values.

Conclusion

These results indicate that frequent consumption of farmed Atlantic salmon over a 8 week period has some influence on serum levels of organochlorine pollutants. Larger sample size would however be needed for more accurate estimation.

