PCBs in Food: The Risks and Benefits of Salmon and Other Foods

Unfortunately, PCBs are so widespread in the environment that they are are virtually impossible to avoid. It is important that consumers make informed choices about foods that provide the greatest benefits relative to the trace amounts of PCBs they may contain.

While trace amounts of PCBs do exist in salmon, both wild and farmed, they are well below the Food and Drug Administration (FDA) tolerance level of 2,000 parts per billion (ppb) and below that of many commonly eaten foods. Recent tests show farmed salmon consumed in the U.S. averages about 25 ppb, or 1/80 of the FDAtolerance.

Minimizing PCB intake:

To minimize PCB intake, you must first understand in which foods trace amounts of PCBs exist. Figure 1 is based on the 2003 Environmental Working Group (EWG) report on PCBs in salmon. It shows the yearly PCB intake by food. It is based on the generally accepted average PCB content and the per capita consumption.

As illustrated, salmon accounts for about six percent of the PCBs ingested from these sources. At current levels, PCB intake from salmon is 1/8 the amount typically ingested through beef.

Similar information can be found in the 2003 National Academy of Sciences (NAS) report on Dioxins and Dioxin-Like Compounds (DLCs) in the Food Supply, which includes a wider variety of foods, including fruits and vegetables. Figure 2 from that report represents the estimated percent contribution of these compounds to the diet from various foods for men 20 years or older. The full report includes breakdowns for females and other age groups.

Figure 3 shows the amount of PCBs in various foods in absolute terms (compared to Figures 1 and 2 which show yearly intake).

What's the point?

Even before the benefits of salmon are considered, it is obvious that salmon should not be the focal point for those concerned about reducing PCBs in the diet. A 12 percent reduction in beef consumption would equal the total amount contributed from the entire per capita consumption of salmon. In young people, it is clear that the focus should be on reducing PCB intake in other foods. Clearly, producers of all commodities should take whatever steps possible to improve this situation as is being done by salmon farmers in North and South America.

Figure 1

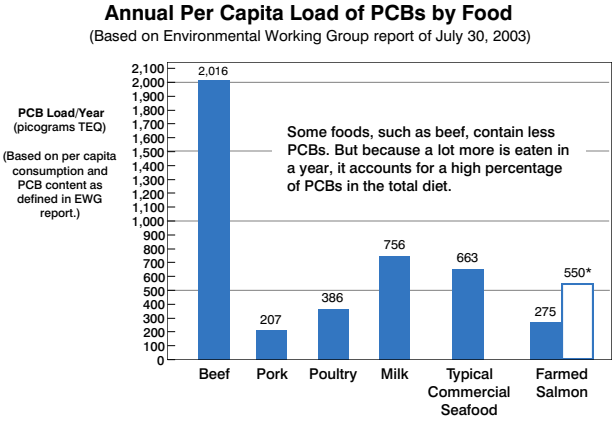
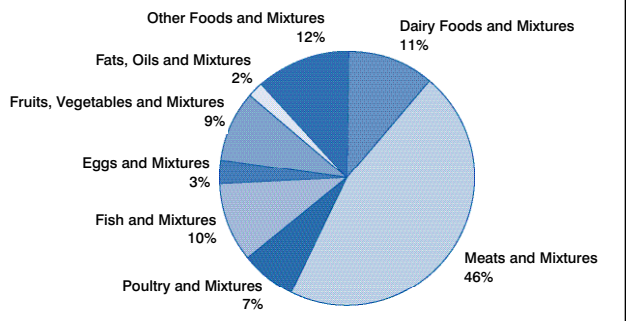
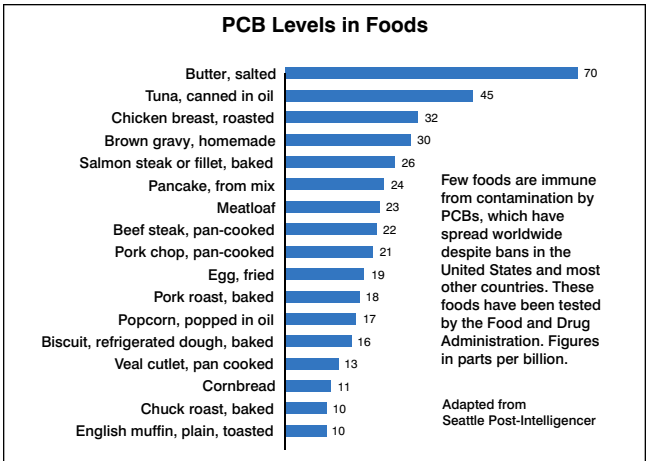


Figure 2



Estimated percent contribution of foods to intake of dioxins and dioxin-like compounds (DLCs), men ages 20 years and older. Percentages were calculated based on mean 2-day average DLC intake/kg of body weight.

Figure 3



This graph shows the absolute amount of PCBs in various foods. It is taken from the most recent FDA market basket study, which samples food as prepared.

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Maximizing Food Benefits

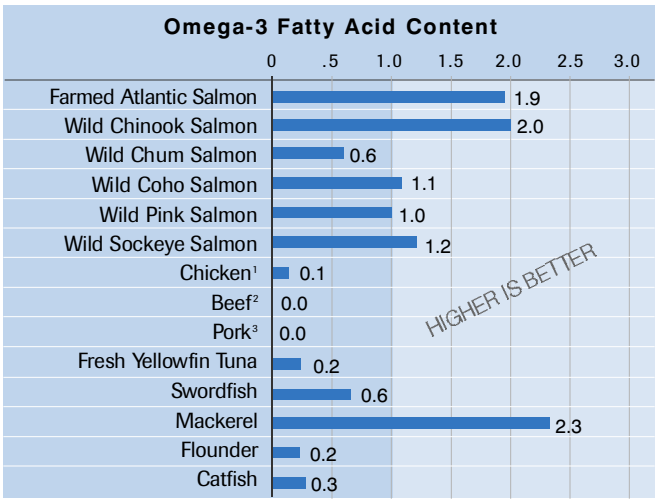
Most foods have particular benefits and some foods have unique benefits found in few, if any, other foods. A balanced diet, therefore, is always wise. Salmon provides such unique benefits that it gains a special place in the benefit equation.

- Salmon, especially farmed Atlantic salmon, is the best source of omega-3 fatty acids of any readily available food. Salmon is also low in saturated fat and high in quality protein. Salmon, because it has fewer calorie dense proteins than many other meat protein sources, may help fight obesity.
- The importance of omega-3 fatty acids, primarily found in fish, is well documented. Eating just two (4-oz.) servings of fatty fish each week appears to protect men and women from coronary heart disease (CHD), the leading cause of death in the United States. The numbers are striking: the estimated reduction in the incidence of CHD is 30%, which means 210,000 fewer cases of CHD a year if two servings of fatty fish such as salmon are included in a weekly diet.
- In addition to reducing the toll of CHD, omega-3 fatty acids have beneficial effects on Alzheimer's disease, depression, premature birth, diabetes and have been shown to relieve symptoms of arthritis.
- The National Academy of Sciences, the American Heart Association and the World Health Organization all encourage regular fish consumption, and agree that the benefits of eating a variety of fish far outweigh any risks.

What's the point?

The health benefits of salmon consumption are substantial. When these facts are coupled with the relatively low amount of PCB load in the diet contributed by salmon as compared to other foods, the risk-benefit conclusion certainly weighs in on the side of continued consumption of salmon. People should be concerned about the level of PCBs in their diet, and should know where to look in the diet for reductions that make sense and do not compromise other significant health benefits. Consumption of certain foods can easily reduce PCB load and should not result in the loss of as many benefits as would occur if salmon consumption were reduced.

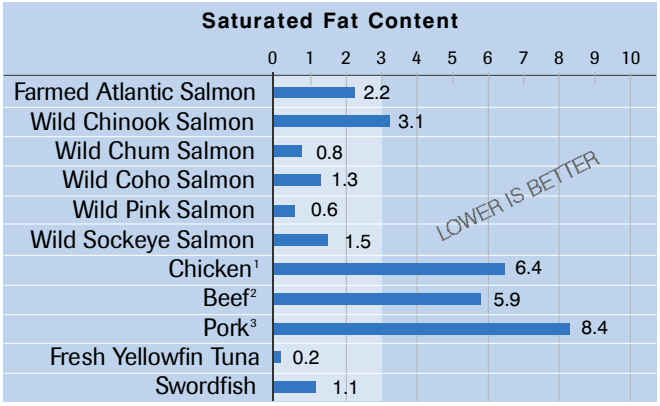
Figure 4



All content in grams per 100 grams, raw
1. Average of white and dark meat with skin, raw
2.Ground beef, 85% lean, 15% fat, raw
3. Fresh loin blade, bone in, raw

Source: USDA Nutrient Database for Standard Reference, Release 16 (2003)

Figure 5



All content in grams per 100 grams, raw

Source: USDA Nutrient Database for Standard Reference, Release 16 (2003)