PCB Effects on Zebrafish Development

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Polychlorinated biphenyls, PCBs, have been shown to cause a variety of adverse health effects on the immune, reproductive, nervous, and endocrine systems. Due to their once widespread usage and their persistence in the environment they are still found contaminating many aquatic environments such as the Hudson River in New York. Qualitative studies were conducted to determine the effects of six different types of PCBs on the development of the heart and branches of intersomitic blood vessels that run along the horizontal myosepta of zebrafish embryos. Results indicate that zebrafish embryos exposed in varying concentrations of all six PCBs exhibited severe curves in their tails, noticeable heart edema, smaller hearts and deformed ventricles and atriums. PCB 126, at concentrations of 7.5µg/L (same as those found in the Hudson River), had the most adverse effects of all the PCBs tested. In addition, the blood vessels that run along the horizontal myosepta persisted past 5 days post fertilization, prior to which they are supposed to degrade under normal conditions. Future studies will focus on the long-term consequences to PCB exposure on the heart and other organ systems of zebrafish.

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