



PCBs and Health: The Hudson River Communities Project

Information Sheet #4: Nervous System Test Results

PCBs and Health: The Hudson River Communities Project is an environmental health study being done by the New York State Department of Health (NYSDOH) in the Fort Edward, Hudson Falls, and Glens Falls areas of Upstate New York. The purpose is to look at whether polychlorinated biphenyls (PCBs) affect people's nervous system. We conducted a series of nervous system tests on a group of participants living in the communities of Fort Edward, Hudson Falls, and Glens Falls. Since PCBs may accelerate the natural decline in nervous system function that occurs with aging, this study focused on individuals aged 55-74 years old. Overall, there were two tests that showed a worsening in nervous system function with increasing PCB blood levels. One test was a measure of short term memory and the other was a measure of symptoms of depression. This information sheet (#4) gives a summary of results for the nervous system tests. Prior information sheets include: Information Sheet #1: Project Update, Information Sheet #2: Detailed Summary Blood Sampling, and Information Sheet #3: Detailed Summary Outdoor Air Sampling. Future information sheets will summarize the results for indoor air sampling.

Key Points and Findings:

- Previous information sheets (#1, #2, and #3) reported the PCB levels in blood in groups of participants living in Fort Edward and Hudson Falls (study area) compared to Glens Falls (comparison area). The blood levels in all areas were similar to each other and to other research on people with no unusual exposure to PCBs.
- This information sheet (#4) reports nervous system findings for older residents from these areas combined, giving a total of 253 participants.
- As a group, participants with higher blood PCB levels tended to have lower scores on one test that measured short term memory. This finding was stronger for men compared to women and people age 55-64 years compared to those age 65-74 years.
- Participants with higher blood PCB levels tended to have higher scores on the test that measured symptoms of depression. This finding was stronger for women compared to men and people age 55-64 years compared to those age 65-74 years.
- Overall, these nervous system test results are consistent with those found in other PCB research studies.

What neuropsychological tests were performed?

As part of the study, we asked 253 volunteer participants from Fort Edward, Hudson Falls, and Glens Falls to complete a set of 34 standardized nervous system tests. Previous information sheets reported that the PCB levels in the blood of persons from the study area did not differ from those of persons in a comparison area, so in this report, both groups were combined. Combining the two groups increased the ability of our analyses to detect smaller differences in the nervous system tests according to PCB exposure.

The nervous system tests measured ability to perform tasks that are related to how well the brain functions in areas such as memory, learning, reaction time, muscle coordination and movement, mood, and sense of smell. For individual results, standard scoring cut-offs were used to determine whether each individuals' nervous system tests were within normal limits.

Participant's scores on the tests differed according to population characteristics such as age, gender, education level, cigarette smoking, and IQ. This study took these characteristics and others into account in the analyses. This increased the strength of the findings by eliminating the chance that the results could be due to age alone or some other factors.

What do these results mean to me and my health?

The test results should be interpreted with caution. A total of 34 tests were performed and analyzed, and just by chance, some may show positive results. Overall, however, the results are consistent with those found in other PCB studies.

Though we found an association between PCB blood levels and performing worse on one short-term memory test and reporting more symptoms of depression, the individual test scores for most of the participants in this study were within normal limits. Only a very small percentage of the participants reported many symptoms of depression.

The results showed that there were small changes in the performance on the nervous system tests. These changes may not be medically important, however. In addition, not every participant with higher PCB levels in their blood had or reported an increase in symptoms of depression or other nervous system conditions.

What are the researchers planning to do next?

The next step in this study is to look at the indoor and outdoor air PCB levels, separately and together with the blood PCB data, to determine whether participants who have higher indoor or outdoor air levels are more likely to have higher levels of PCBs in their blood.

Questions and Additional Information: Who to contact at NYSDOH

General study and neuropsychological information:

Erin Belanger at 1-800-458-1158, extension 27950

Reports, Updates, Community Outreach:

Betsy Prohonic at 1-800-458-1158, extension 27530

For additional information on this and other similar projects at the New York State Department of Health, visit our website at: www.nyhealth.gov/environmental/

