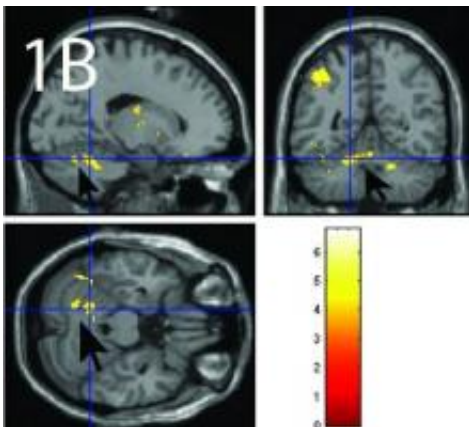


# Sensitive people may use their brains differently

April 8 2010, by Lin Edwards

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(PhysOrg.com) -- An exploratory study has examined highly sensitive people and found the first evidence of neural differences between them and less sensitive people. Most studies have focused on the social implications of these traits, but the new study concentrates on the differences in how people's brains respond to stimuli.

Approximately one in five people are born with Sensory [Perception Sensitivity \(SPS\)](#), a [personality trait](#) that can lead to people being highly sensitive, and sometimes inhibited, introverted, shy, or even neurotic. Children with SPS may seem to be slow to adjust to situations, or may cry easily, have unusually deep thoughts, or may ask odd questions. Until now, there has been little study of how the brain's responses may be

different in highly sensitive people.

The study first examined the responses of 16 subjects who each completed the "highly sensitive person" questionnaire, which is used as a standard measure of SPS, to determine their level of sensitivity. The researchers then asked the subjects to compare two photographs of the same scene and to spot any differences, at the same time as their brains were being scanned by functional magnetic resonance imaging (fMRI).

The results showed that subjects with higher SPS (the more sensitive people) had greater activation in areas of the [brain](#) concerned with high-order visual processing, including the bilateral temporal, medial, and posterior parietal regions, right claustrum, and left occipitotemporal regions, as well as the right cerebellum. Those with SPS spent longer looking at the photographs and paid more attention to detail.

The researchers were from Stony Brook University in New York, and from the Chinese Academy of Sciences and Southwest University in China. They found people with SPS took longer to make decisions, needed more time alone to think, were more conscientious, and became more bored with small talk than other people.

Previous studies have shown that people with SPS are also more affected by caffeine, are more easily startled, and are more uncomfortable with noise and crowded situations. The researchers said these effects could be due to an innate preference for paying more attention to experiences.

Over 100 other species are known to have individuals with the sensitivity trait, including dogs, fish, primates, and even fruit flies. Individuals exhibiting the sensitive trait are always in the minority, but they may give the species an evolutionary advantage at times, since highly sensitive individuals tend to explore with their brains first, while others rush in, and this can be advantageous when a more thoughtful approach

is better or less dangerous.

The paper was published in the journal *Social Cognitive and Affective Neuroscience* in March.

**More information:** The trait of sensory processing sensitivity and neural responses to changes in visual scenes, *Soc Cogn Affect Neurosci* (2010), [doi:10.1093/scan/nsq001](https://doi.org/10.1093/scan/nsq001)

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