Test for Schizophrenia

Few years ago, researchers from the London University discovered that schizophrenics are not that easily fooled by visual illusions. Even though their illness sometimes makes it difficult for them to distinguish fact from fiction, the study showed that they can see right through some optical illusions. What is so interesting about this finding is that it helps bolster one interpretation of this mental illness – that it may be due to a general inability to interpret sensory information in its proper context.

How the Test was Conducted:

Volunteers were shown high-contrast black and white patterned images, with sections altered so that the level of contrast is much lower. They were then asked effectively to match the contrast of the altered section to its twin in a line-up of otherwise identical shapes.

Schizophrenics find this task relatively easy, because their brain takes no account of the surrounding information when judging the level of contrast in the altered section. Non-schizophrenic brains, however, make relative judgments about the altered section, because of the surrounding higher contrast pattern.
The results were startling: 12 of the 15 schizophrenic observers were more accurate than the most-accurate member of the control group. The illusion is pretty substantial, but the schizophrenics were almost completely immune to its effect.

Though it’s still early, the authors hope their study might have some diagnostic value. Existing criteria for schizophrenia diagnosis tend to be subjective, and is based on interviews, but this study might be a good step towards more objective diagnostics one day.

The Explanation

To normal eyes, large circle background makes the central disk appear slightly greyer than it actually is. The researchers then assessed the subjects’ perception, showing them a series of disks of increasing grayness. For each disk, the observer had to guess whether the patch was of more or less contrast than the original image.

Dr Steven Dakin, of the UCL Institute of Ophthalmology, explained: “Normally, contextual processes in the brain help us to focus on what’s relevant and stop our brains being overwhelmed with information. This process seems to be less effective in the schizophrenic brain, possibly due to insufficient inhibition – that is, the process by which cells in the brain switch each other off.”

He suggests that if this is part of a more general problem in dealing with information about context, it could explain why many schizophrenics misinterpret people’s actions, and can feel persecuted.
“We often think of people with schizophrenia as not seeing the world the way it really is – for example, during hallucinations – but we have shown that sometimes their vision can be more accurate than non-sufferers” – Dr. Steven Dakin, UCL Institute of Ophthalmology