

# A FDG-PET and fMRI Study on Glucose Metabolism and Hemodynamic Response during Visual Attentional Performance in Schizophrenia

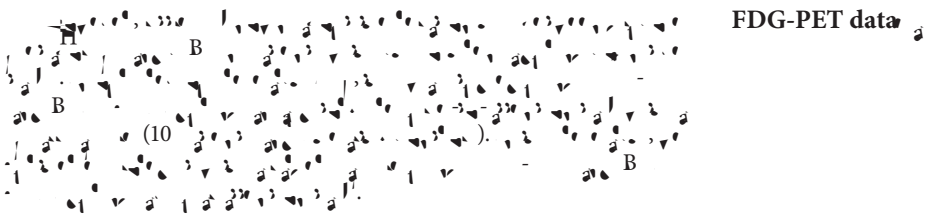
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**Keywords:** Schizophrenia, Visual attention, FDG-PET, fMRI, Glucose metabolism, Hemodynamic response

## Introduction

Schizophrenia is a complex psychiatric disorder characterized by a range of symptoms, including hallucinations, delusions, and cognitive deficits. One of the most prominent features of schizophrenia is a deficit in visual attention, which is thought to be related to abnormalities in the brain's glucose metabolism and hemodynamic response. This study aims to investigate the relationship between glucose metabolism and hemodynamic response during visual attentional performance in schizophrenia. We used FDG-PET and fMRI to measure glucose metabolism and hemodynamic response, respectively, during a visual attention task. The results show that glucose metabolism is significantly lower in the visual attention task compared to the control task, and this deficit is associated with a reduced hemodynamic response. These findings suggest that the visual attention deficit in schizophrenia is related to abnormalities in glucose metabolism and hemodynamic response.

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## Materials and Methods

### Subjects

11 subjects (6 males, 5 females) with a diagnosis of schizophrenia (DSM-IV) were recruited from the University of California, San Diego (UCSD) Medical Center. All subjects were right-handed as determined by the Edinburgh Handedness Inventory (EHI) [10]. The subjects were screened for current and past substance use (alcohol, marijuana, cocaine, and opiates) using a urine toxicology screen. All subjects had a full range of motion in the neck, shoulders, and hips. The subjects were screened for current and past psychiatric and medical conditions using a structured clinical interview (SCID-1/NP) [11]. The subjects were screened for current and past psychiatric conditions using a structured clinical interview (SCID-1/NP) [11]. The subjects were screened for current and past medical conditions using a structured clinical interview (SCID-1/NP) [11]. The subjects were screened for current and past psychiatric conditions using a structured clinical interview (SCID-1/NP) [11].



Correlations between rGMR and hemodynamic responses



## Results

Figure 1 shows the correlations between rGMR and hemodynamic responses in the brain. The image displays a coronal slice of the brain with numerous small black markers indicating significant correlations. A label '1' is visible in the upper right quadrant of the brain image.

Figure 2 shows the correlations between rGMR and hemodynamic responses in the brain. The image displays a coronal slice of the brain with numerous small black markers indicating significant correlations. A label '11' is visible in the upper right quadrant of the brain image.

## Discussion

The results of this study show that there are significant correlations between rGMR and hemodynamic responses in the brain. The image displays a coronal slice of the brain with numerous small black markers indicating significant correlations. A label '11' is visible in the upper right quadrant of the brain image.

## **Different patterns of rGMR-flow correlations in patients and controls**



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