

Introduction

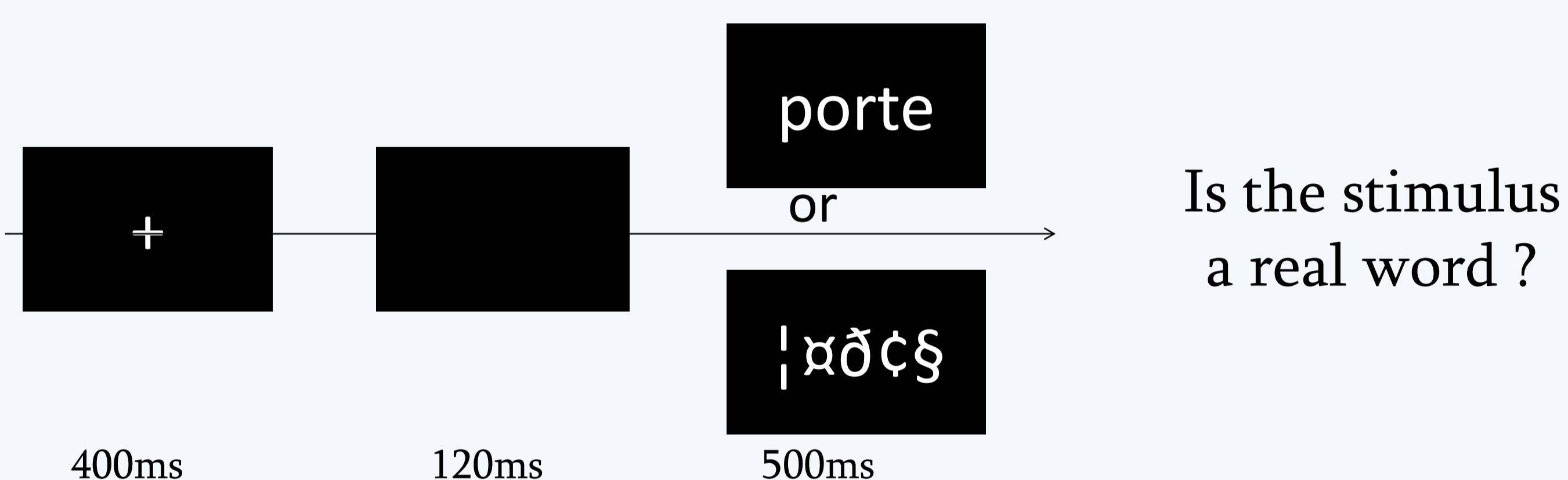
- Reading has been recently proposed as one of the cognitive function impaired in schizophrenia.
- Deficits in reading comprehension, fluency and phonological processing have been reported in patients (Revheim et al., 2006, 2014).
- The authors stated that reading impairments reached the level of dyslexia in 2/3 of the tested schizophrenic patients.

Aim of the study: determine whether patients present the same characteristics as dyslexics
How? By investigating the N170 component

- In normoreaders, the amplitude of the N170 is greater for **orthographic** than **non-orthographic** stimuli (Bentin et al., 1999).
 → N170 reflects visual expertise for print processing.
- In dyslexics, an absence of N170 tuning has been observed and considered as a hallmark of dyslexia (Mahé et al., 2012).

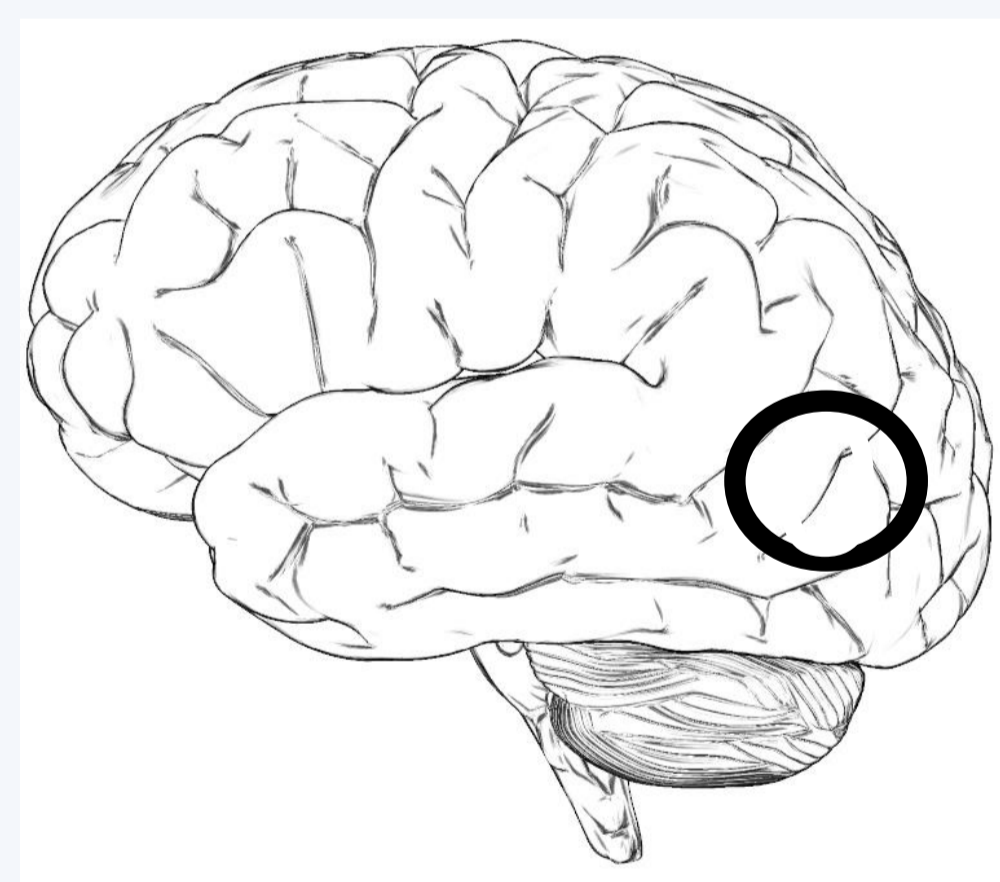
Method

- 18 patients (38,4 years) and 18 controls (40,2 years) matched in education level
- Task: Lexical decision with **Words** and **Symbols**



- EEG recording (64 electrodes)

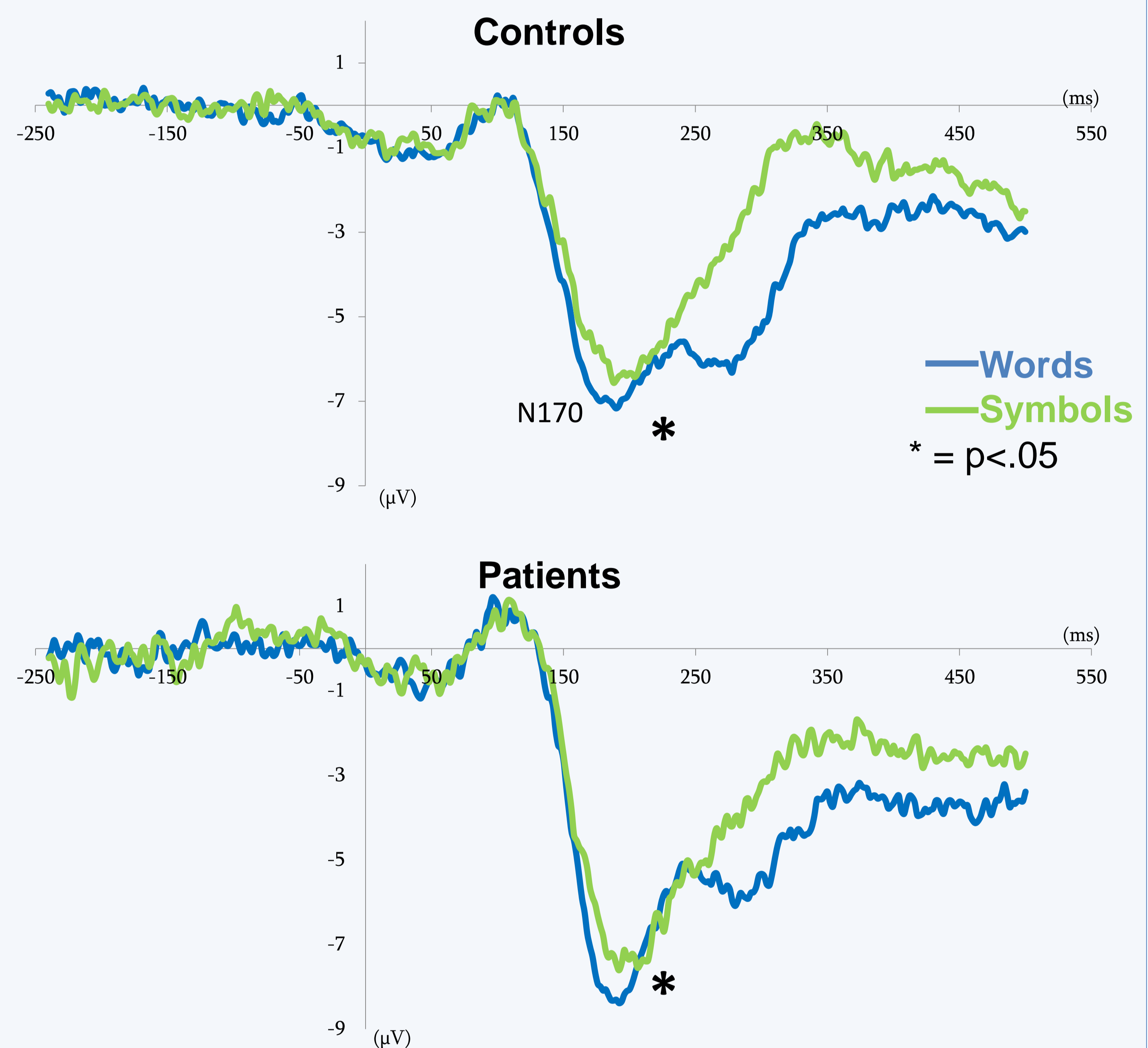
- Filters :**
 online : High-pass 0,01Hz ; Low-pass 500 Hz
 offline : Notch filter at 50 Hz



- Analysis :**
 N170 amplitude in the 140-200ms time window on the left occipito-temporal electrode **PO7**

- Variables**
 Hemisphere (left, right)
 Stimulus (words, symbols)
 Group (patients, controls)

Results



- Left-lateralized effect of stimulus**
 Interaction Hemisphere*Stimulus: $F(1,33)=11.06, p<.005$
- No differences between controls and patients**
 Interaction Hemisphere*Stimulus*Group: $F<1$

Conclusion

- A **modulation** of the **N170 component** is observed in for patients and controls, depending on the presented stimulus.
- As controls, **schizophrenic** patients present **visual expertise** for written **word processing**.
- The **reading difficulties** of schizophrenic patients are thus **different** than those of **dyslexics**.
- Future studies should build a reading diagnostic assessment in patients to determine the impaired stages of visual word recognition.

References

- Bentin S, Mouchetant-Rostaing Y, Giard MH, Echallier JF, Pernier J (1999) ERP manifestations of processing printed words at different psycholinguistic levels: time course and scalp distribution. *J Cogn Neurosci* 11:235–260.
- Mahé G, Bonnefond A, Gavens N, Dufour A, Doignon-Camus N (2012) Impaired visual expertise for print in French adults with dyslexia as shown by N170 tuning. *Neuropsychologia* 50:3200–3206.
- Revheim N, Butler PD, Schechter I, Jalbrzikowski M, Silipo G, Javitt DC (2006) Reading impairment and visual processing deficits in schizophrenia. *Schizophr Res* 87:238–245
- Revheim, N., Corcoran, C., Dias, E., Hellmann, E., Martinez, A., Butler, P., et al. (2014). Reading deficits in schizophrenia and individuals at high clinical risk: relationship to sensory function, course of illness, and psychosocial outcome. *Am J Psychiatry*, 171, 949-959.