La pupillométrie : une nouvelle fenêtre sur la cognition dans les DFTs ?

Pr Mohamad El Haj & Dr Claire Boutoleau-Bretonnière

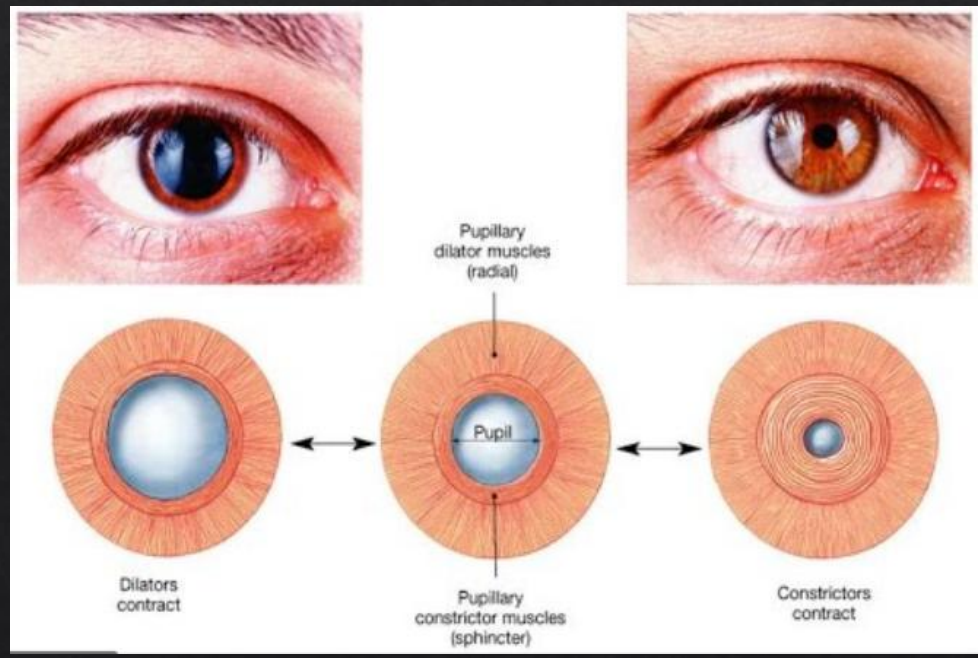
Nantes Université & CHU Nantes

- La pupille:

- Ouverture centrale de l’iris

- Deux muscles : sphincter, dilatateur

- Variation rapide du diamètre

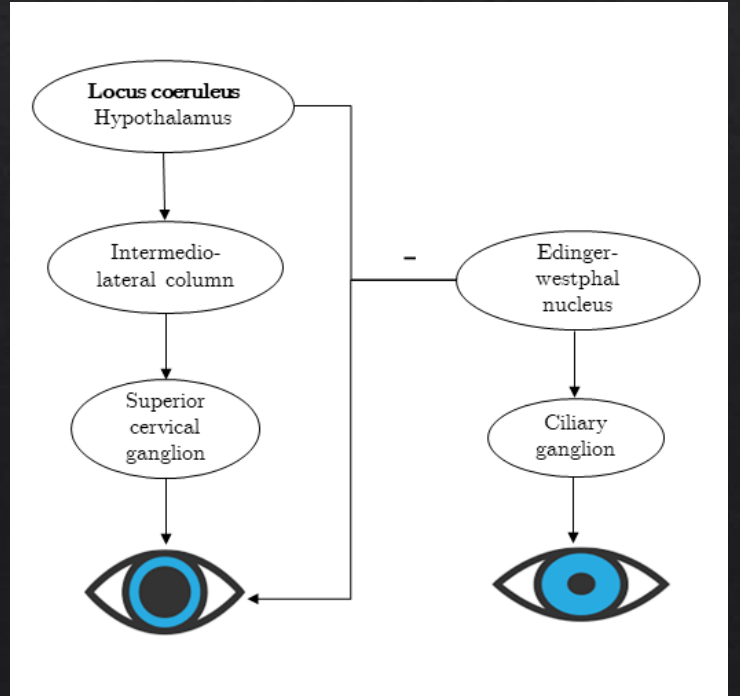


- La pupille:

- Rôle du locus coeruleus (LC)

- Noradrénaline & attention

- Pupille = reflet périphérique de l'activité du LC



- La pupille: pourquoi la DFT?

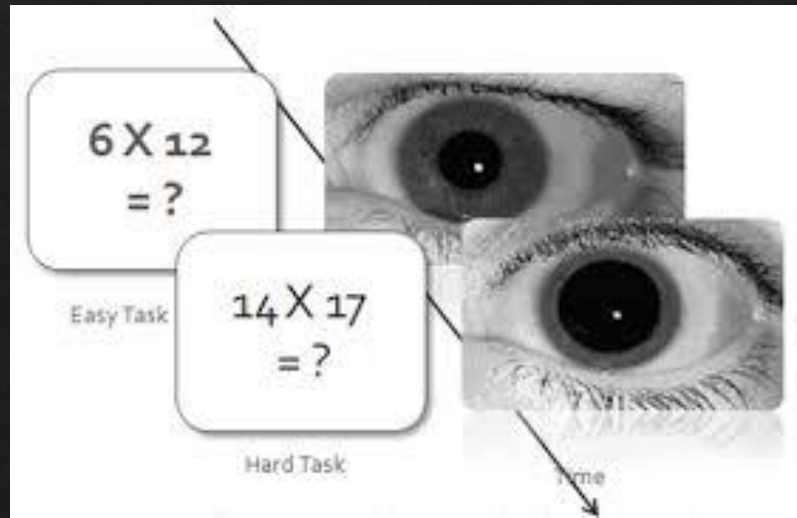
- Atteinte fronto-insulaire
- Dysrégulation autonome
- Pupille = fenêtre implicite

- Pupille & charge cognitive/language

- Relation charge cognitive ↔ dilatation

- Travaux fondateurs

- Mémoire de travail



- Etude I, pupillométrie & mémoire de travail

- Participants

- Tâches : forward / backward span

- Mesure pupillaire



El Haj, M., Kapogiannis, D., & Boutoleau-Bretonnière, C. (2022). Pupillometry as an index for cognitive processing in behavioral variant FrontoTemporal Dementia: a series of case studies. *Neurocase, 28(3), 270-275.*

- Etude I, pupillométrie & mémoire de travail

- Backward > Forward > Comptage

- Effet conservé dans la bvFTD

- Amplitudes comparables

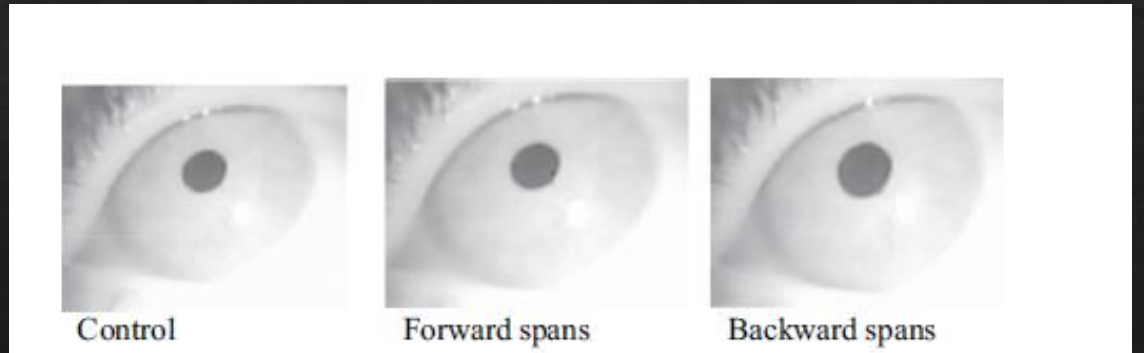
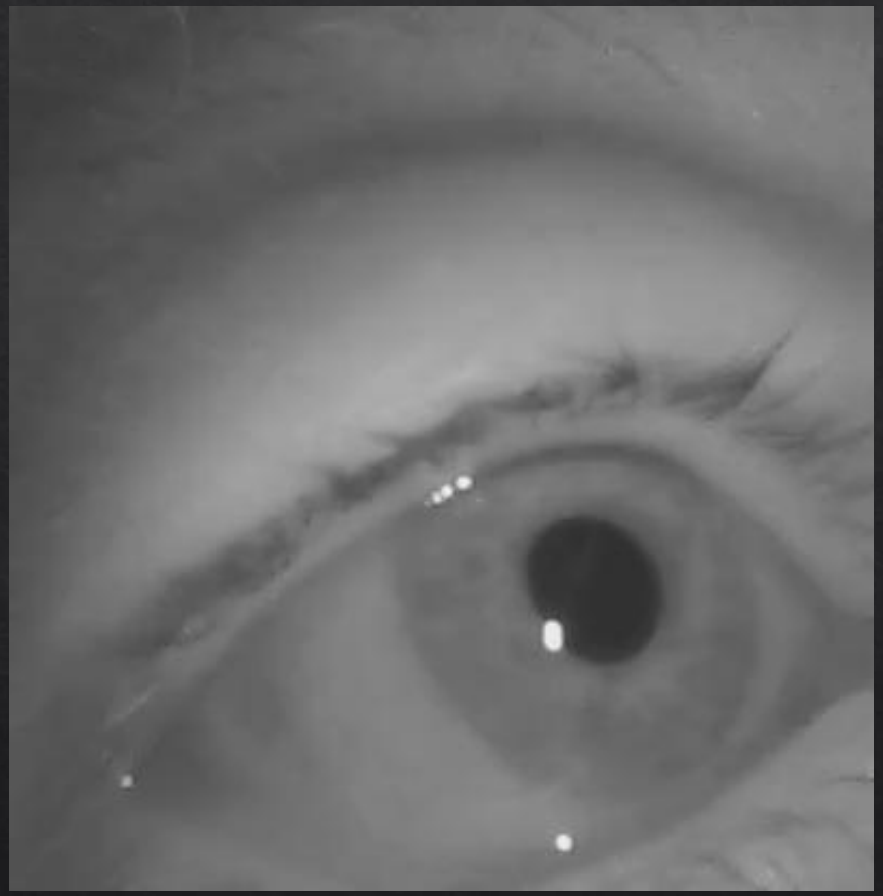


Figure 1. Illustration of pupil diameter in a patient during spans and control task.

El Haj, M., Kapogiannis, D., & Boutoleau-Bretonnière, C. (2022). Pupillometry as an index for cognitive processing in behavioral variant FrontoTemporal Dementia: a series of case studies. *Neurocase, 28(3), 270-275.*

➢ Etude I, pupillométrie & mémoire de travail



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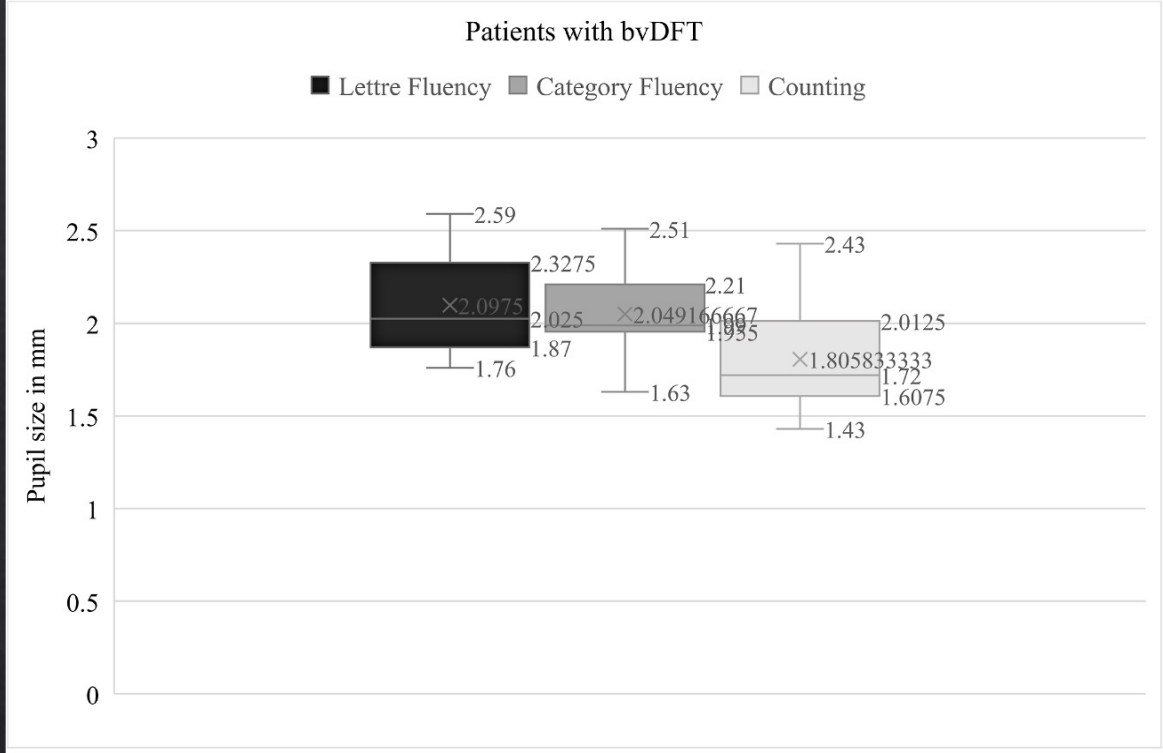
➢ Etude II, pupillométrie & fluence verbale

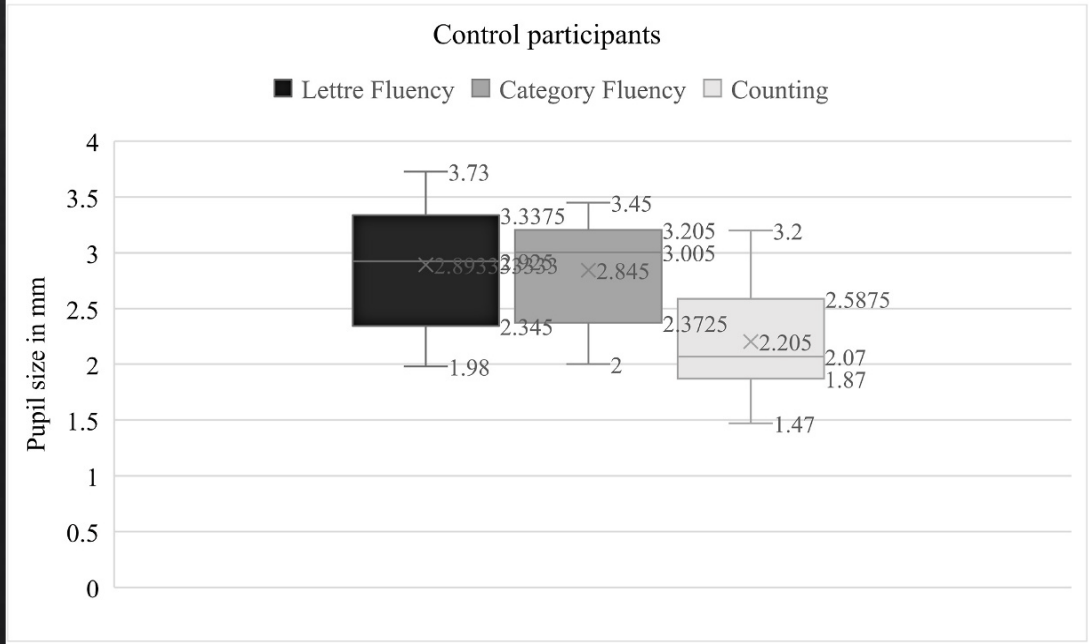
- Lettres / Catégories

- Comptage

El Haj, M., Kapogiannis, D., & Boutoleau-Bretonnière, C. (2024). Pupil size shows diminished increases on verbal fluency tasks in patients with behavioral-variant-frontotemporal dementia. *Journal of Neurolinguistics, 69, 101164.*

➢ Etude II, pupillométrie & fluence verbale





➢ Discussion

- Intérêt clinique
- Mesure implicite
- Utilité dans la bvFTD

➢ Discussion

- Pupille = fenêtre cognitive
- Effort détectable
- Perspectives

Merci de votre attention

