

Neurocognition

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Epilepsy

EEG diagnosis (sleep deprivation,
recordings during sleep)

Development of expertise in
the area of sleep medicine

Sleep medicine

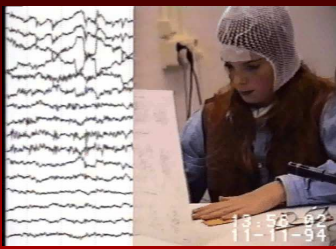
Epilepsy

- Onset mostly in childhood
- Cognitive comorbidity is common and often confusing

Main complaint: attentional disorders and
educational arrest

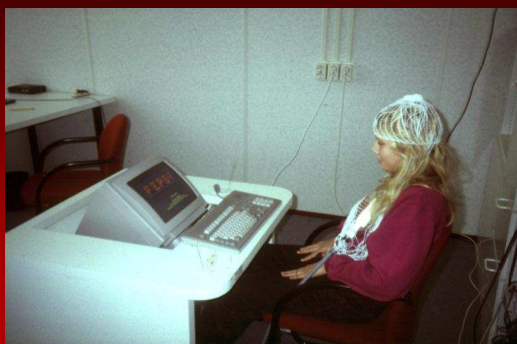
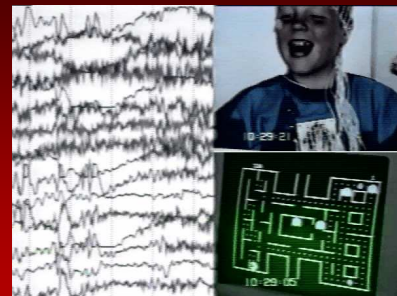
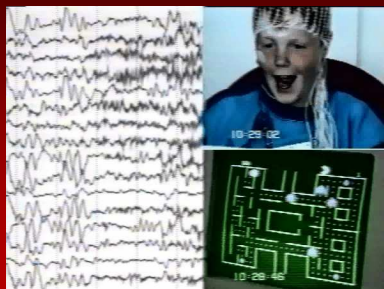


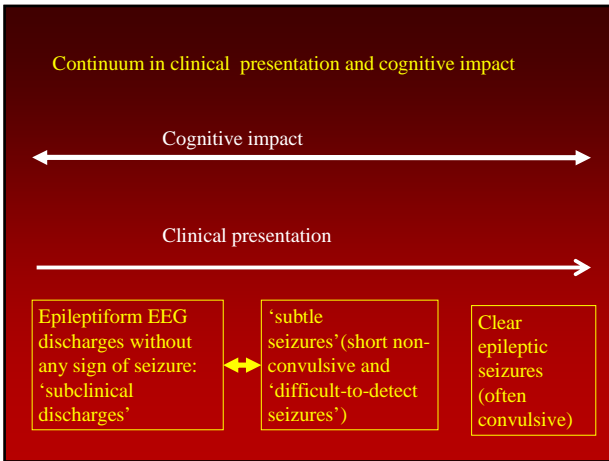
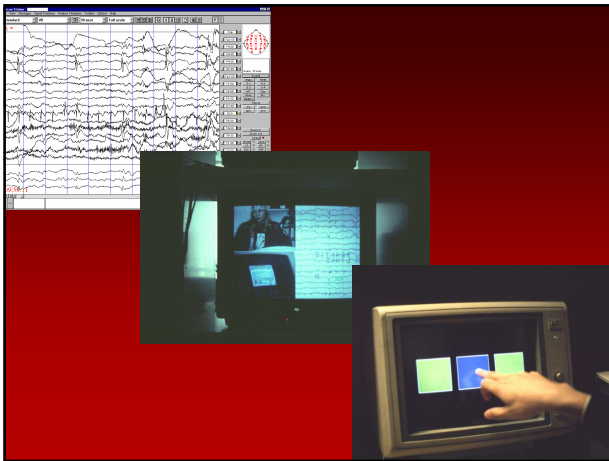
Short non-convulsive epileptic seizure



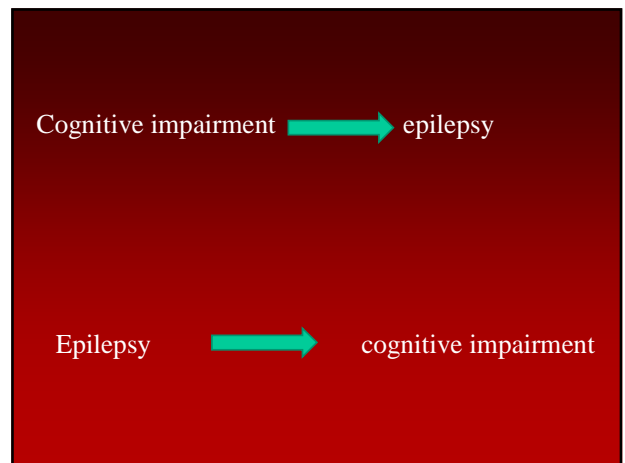
Did you have schoolwork in the weekend?
What did you say?
Ah well...

Main complaint: gradual increase of
attentional deficit and
hyperactivity/impulsivity during the day

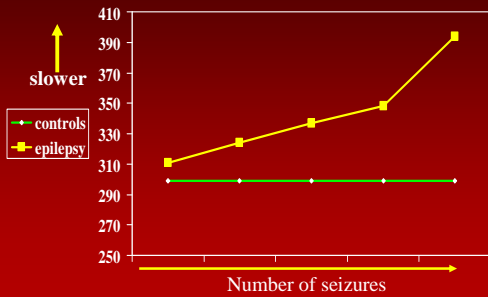




- Inkt
- Zeggen
- Top
- Koud
- Ballen
- Spreken
- Zakdoek
- Rietje
- Web
- Kooi
-
- Paal (pauw)
- Hokken (hoppen???)

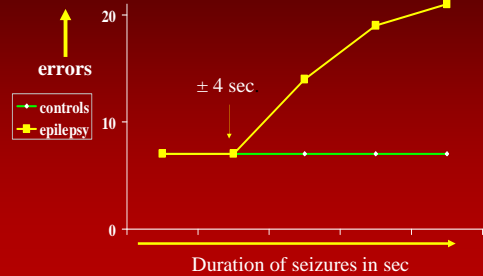


With higher seizure frequency of ('subtle') seizures: more attentional deficits



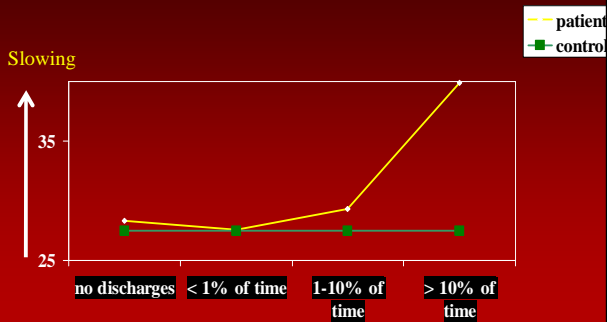
Aldenkamp & Arends, Epilepsia, 2004; 45, 1001-1041

With longer seizure duration more impact on memory



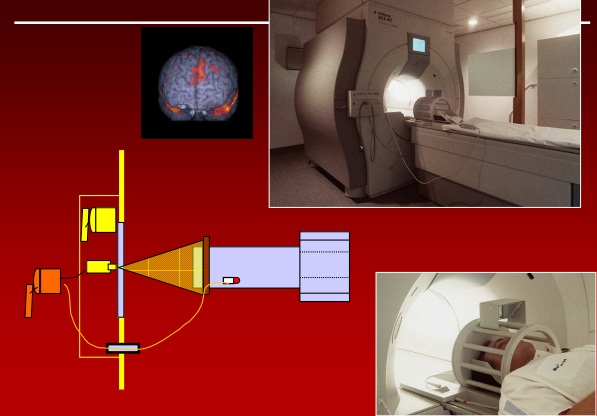
Aldenkamp & Arends, Epilepsia, 2004; 45, 1001-1041

With more epileptiform EEG discharges more slowing of central information processing

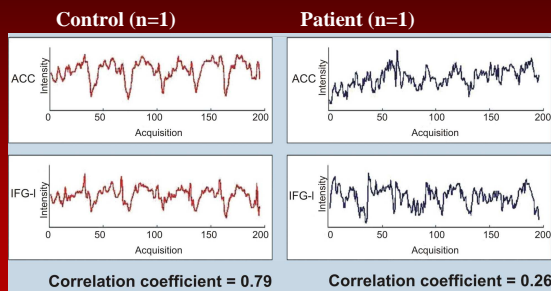


Aldenkamp & Arends, Epilepsia, 2004; 45, 1001-1041

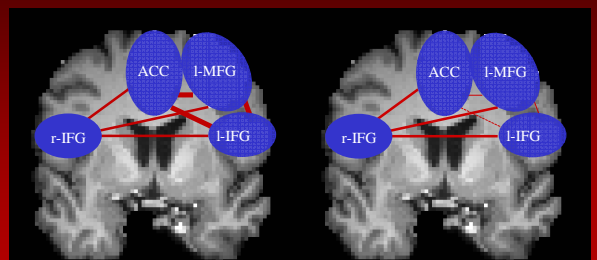
Neuronal correlates?

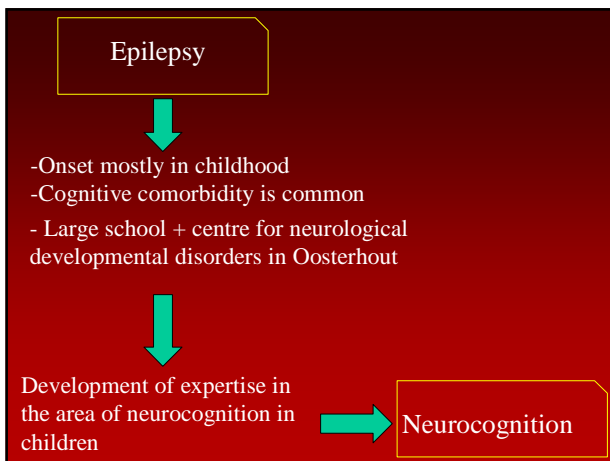


Method – Functional –connectivity analysis



Connectivity maps





Centre for neurocognition in children



Centrum voor neurologische leerstoornissen en ontwikkelingsstoornissen

'Facilities'

Centre for neurocognition in children

- Oosterhout (COS): 160 children per year (clinical admission)
- Heeze: Pilot: 100 children last year (outpatient approach)
- 250 children with neurologically based cognitive and developmental disorders

Berkenschutse special education up to secondary school:
license for chronically ill children (epilepsy etc.) + 500 children and 250 children per year in ambulatory care

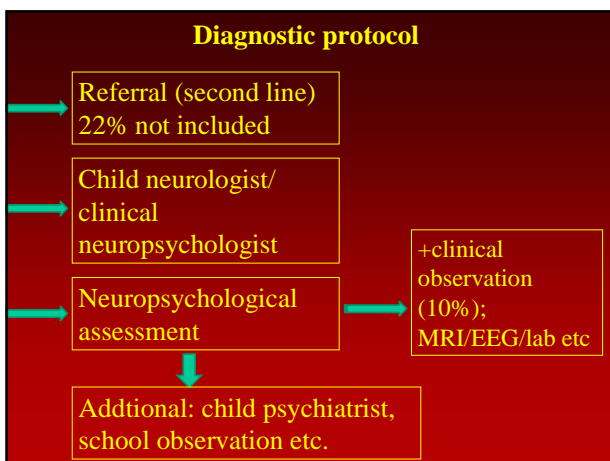
- Large facility for high functioning autism (+ 250 children)

Research:
Department for neuropsychology, EEG, MRI!!!

Type of neurological deficit at admission

Tabel 4: medische diagnoses bij aanmelding.

Aantal patiënten waarbij zorgtraject is afgerond	65
- Periventriculaire Leukomalacie	2
- Ataxie van Friedrich	1
- Chorioamnionitis en motorische retardatie	1
- Cyste ter hoogte van het cerebellum	1
- Delayed visual maturation	1
- Duane retractie syndroom	2
- Dysfasie en motorische retardatie	4
- Dystrofia myotonica juveniele vorm	3
- Encephalitis, herpes type 6	1
- Prematuriteit/ Extreme low birth weight	3
- Gerstmann syndroom	1
- Corpus Callosum pathologie	3
- Cerebrale Parese	2
- Afasie en witte stof beschadiging	2
- Hersentumor	2
- Kabuki syndroom	1
- Klippel-Fell syndroom met MRI afwijkingen	1
- Limb Girdle spierdystrofie type 2	2
- Macrocephalie/Macrocranie	2
- Meningitis	4
- Migraine	1
- Neurofibromatose type 1	6
- Flexus brachialis	1
- Schizis	1
- Spierziekte van Duchenne	4
- Spina bifida	2
- Subacute cerebellaire ataxie	1
- Leerstoornissen e.o.	11



Neurocognitive diagnoses after the diagnostic protocol

- Majority of the children receive a new diagnosis or a revised diagnosis.
- Ranging from ADHD or dyslexia, up to autism syndrome, or specific neurocognitive disorders such as developmental dysphasia
- Important: the relationship with the neurological diagnosis: prognosis and effects on daily life (school)

Treatment protocol

1. Referral (neuropsychological)
2. Follow up of treatment elsewhere
3. Monitoring of medication effects
4. Psycho-education
5. **Cognitive training**
6. Parent counseling
7. Educational counseling
8. Training of child rearing practice
9. Advice about adapting the child environment
10. Help with financial support

Wishes wishes wishes

- Support of the difficult neurorehabilitation process, especially cognitive training
- Processes such as inhibition control in ADHD, special adaptation of learning in dyslexia or developmental dysphasia
- We need the help of a technical infrastructure: virtual reality, computer games, special adaptation of learning environment ; we will invest a PhD student.
- Is robotics helpful in autism?
- Help with further development of imaging techniques to clarify neuronal correlates of neurocognitive problems.

