University Leiden, The Netherlands

Master (MSc) in
Clinical Neuropsychology

Huub A.M.Middelkoop,
Professor of clinical neuropsychology

LUMC Neurology & Neuropsychology
UL Neuropsychology

https://twitter.com/huubmiddelkoop
http://www.fsw.leidenuniv.nl/psychologie/organisatie/gmn/

Clinical neuropsychologists are experts in psychology as applied to neurological conditions, i.c. brain illness, neurodevelopmental disorder, neurodegeneration or brain injury

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Why study *clinical neuropsychology* ?

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You are interested in:

brain/behavior relationships: how does the healthy and impaired brain function?
(neurobiology, modelling, development and inplementation of methods/instruments)

classification (diagnostics), prediction (prognostics) and/or modification (therapy, training, rehabilitation) of normal / disturbed behavior.

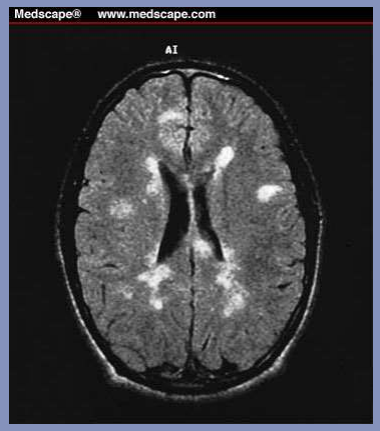
and you want to be professionally active in:

University medical centres (UMCs) and general hospitals
Rehabilitation centres
Mental health services (GGZ, Psychiatry)
Pediatric and Geriatric health care facilities
Research centres, e.g. university, TNO, RIVM
Forensic setting
Pharmaceutical industry: CNS division
Profit and non-profit sector: assessment centres, government, commercial enterprises, etc.
Private practice, ????

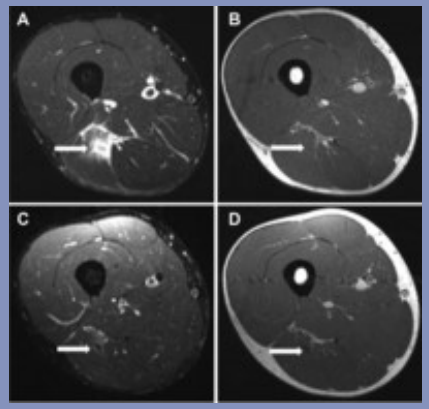
3 major career tracks

1. Health care: BA > Msc CNP (1y)> GZ-Psychologist (2y)> Clinical neuropsychologist (4y)
2. (Clinical) research: BA > Msc CNP (1y)> PhD (4y)
3. Other: BA > Msc CNP (1y)> ?

Anatomical lesions < > functional lesions



No association between fibrosis on magnetic resonance imaging at return to play and hamstring reinjury risk. Am J Sports Med. 2015 May;43(5):1228-34. Reurink G[1] et al.



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CNP: behavioral consequenses of (organic/functional) brain dysfunction: assessment, diagnosis, treatment and rehabilitation

Organic brain disorders

Genetic and neurodevelopmental disorders
- –mental retardation, ADHD, dyslexia, Angelman, Prader-Willie syndrome

Cerebrovasculopathy / CVA

Traumatic brain injury

Neurointoxication
- –alcohol, solvents, drugs

Psychiatric disorders
- –depression, anxiety, schizophrenia

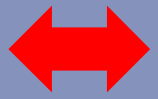
Neurodegeneration
- –Lewy body disease, Parkinson's, Huntington's, Alzheimer's disease

Other
- –HIV, tumor cerebri, epilepsy, (metabolic) encephalopathy, brain infection, hydrocephalus, radiation

Functional brain disorders

Psychopathology

Clinical relevance: 1 out of 5 people will suffer from brain disease !



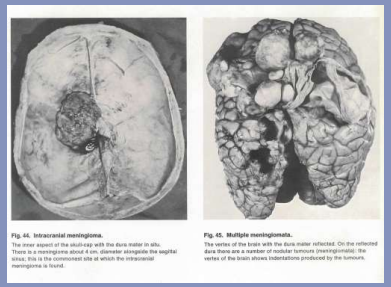
(Neuro)psychological impairments

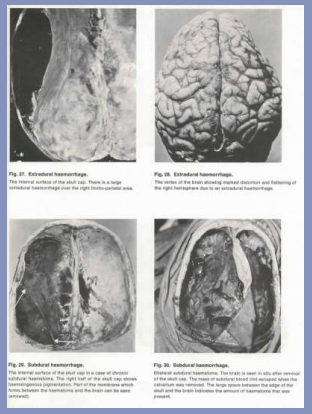
cognition
- attention and concentration problems
- amnesia
- aphasia
- agnosia, apraxia
- executive disfunction

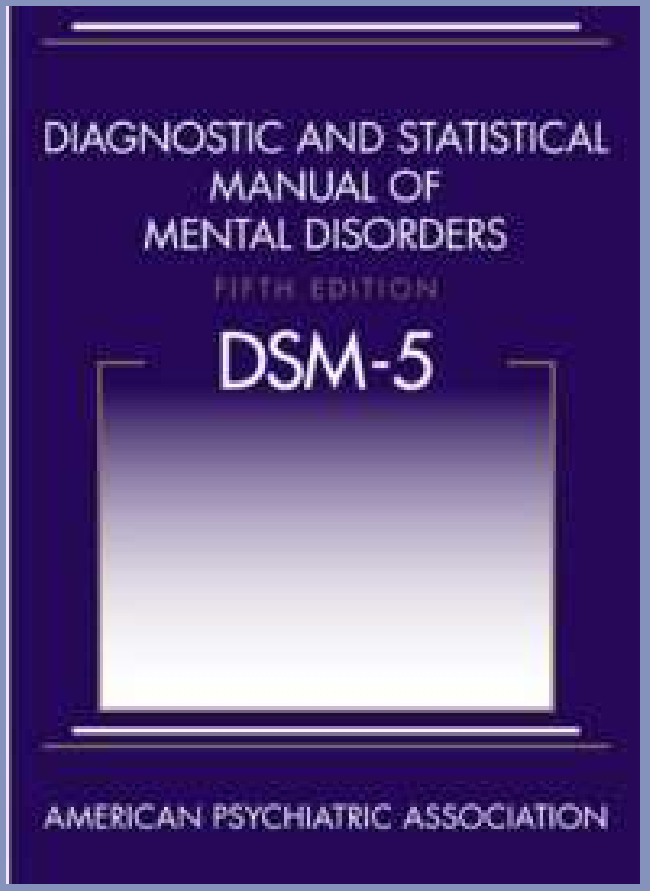
emotional status
- anxiety, depression

behavior
- apathy, disinbition
- delusion, hallucinations
- personality change
- sensory, motor and autonomic nervous system disturbances

NEUROPATHOLOGY <> PSYCHOPATHOLOGY







Role and value of clinical neuropsychology

Fundamental (clinical) research of normal and pathological brain/behavior relationships

Selection and description of (patient) study populations (*cognitive genetics, fenotyping*)

Research, development and evaluation of (clinical) research instruments (validation, reliability, applicability, normative data)

Contribution to medical diagnostic work-up: assessment of neuropsychological dysfunction indicative for organic brain disease

(Neuro)psychological function analysis: description of neuropsychological impairments and their consequences for daily functioning

(Neuro)psychological interventions: treatment of patients with cognitive and/or behavioral disorders as result of (organic) brain disease (*cognitive rehabilitation*)

Quantitative evaluation of (non)pharmacological interventions


NEW
EARLY ALERT™
Alzheimer's
Home Screening Test
Early detection can lead to early treatment and improved quality of life.
• Self-administered
• Painless and non-invasive
• Simple and easy to use
• Results in 5 minutes
Have you ever wondered?™

CNP program (60 EC)

>>> entry requirement: BA Psychology with Kolb& Wishaw Neuropsychology

- **Courses (20 EC):**
  - Adult and old-age Clinical Neuropsychology: theory (5 EC) & practice (5 EC)

  Or
  - Child Clinical Neuropsychology: theory (5 EC) & practice (5 EC)

  And
  - Clinical neuropsychological interventions: theory (5 EC) & practice (5 EC)
- **Thesis (20 EC)**
- **Internship (20 EC)** ***or*** **10 ECTS internship and 10 ECTS elective courses (e.g. A&O or Child Clinical neuropsychology theory**

Course content (60 EC)

Key issues

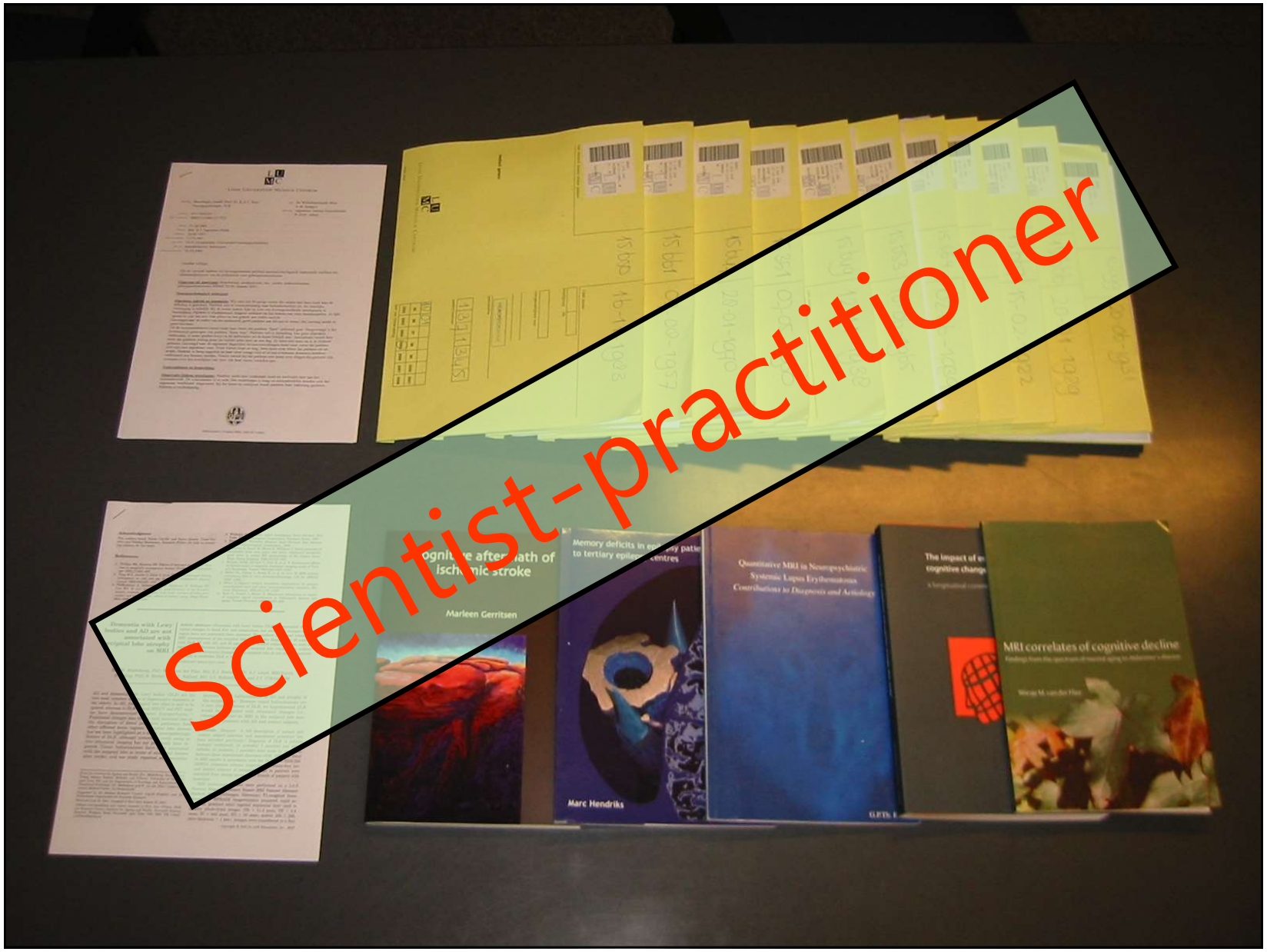
***Brain/behavior relationships*: how does the healthy and impaired brain function? (neuro(patho)(physio)logy, modelling, development and inplementation of methods/instruments)**

Classification (diagnostics), prediction (prognostics) and/or modification (therapy, training, rehabilitation) of normal / disturbed behavior.

- Lifespan: child, adult, old-age clinical neuropsychology
- Genetics, neuropathology, functional neuroanatomy, brain (patho)physiology
- Diagnostic work-up and treatment of major neurological and psychiatric disorders (mental status examination, DNA testing, MRI, EEG, psychopharmacology etc.)
- Neuro(psycho)logical disorders: developmental, acute, reversible, degenerative
- Clinical neuropsychology: diagnostics, prognostics, treatment and rehabilitation
- Evidenced-based and multidisciplinary approach
- Professional and medical ethical issues

Assessment & Intervention skills (patient and/or care giver)

- Indicating, observation, history taking, (neuro)psychological examination > etiological, functional diagnosis and treatment options
- Neuropsychological interventions: psycho-education, cognitive-, behavioral- and system therapy, case management, neurorehabilitation (strategy and function), neuro feedback
- E–diagnostics, E-psychotherapy, E-function training, E-care giver management


Scientist-practitioner
Marleen Gerritsen
Marc Hendriks
MRI correlates of cognitive decline

Thesis: memory activation and EEG in Alzheimer's disease

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Master thesis topics (20 EC)

- Smaller grey matter and brainstem volumes associated with diminished cognitive performance in children with Duchenne muscular dystrophy: a pilot study
- Depression six months after aneurysmal subarachnoid haemorrhage
- Cardiovascular disease load and cerebral small vessel disease in cognitive profiles in Alzheimer patients
- Irritability and excutive functioning in Huntington's disease
- The association between prenatal cannabis use and visual spatial processes in six to eight year old children
- In vivo magnetic resonance imaging of amyloid-B deposition in patients with probable Alzheimer's disease
- Effectiveness of the Patient Education Program for patients with manifest Huntington's disease
- Patient satisfaction at the LUMC department of Neuro Intensive Care
- Need for psychosocial treatment of patients with Parkinson's disease
- The effect of sleep deprivation on cognitive flexibility in rats
- Cognitive functioning in Rheumatoid Arthritis

- Check PUBMED for professor Middelkoop's clinical research projects at the Department of Neurology & Clinical Neuropsychology of the LUMC: http://www.ncbi.nlm.nih.gov/pubmed/?term=middelkoop-ha

Clinical practice: the neuropsychological examination I/II

Clinical practice: the neuropsychological examination II/II

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A students perspective...

- Courses:
  - Adult and old-age Clinical Neuropsychology: theory & practice
  - Clinical neuropsychological interventions: theory & practice
  - Elective: Child Clinical Neuropsychology: theory
  - Elective: Child Clinical Neuropsychology: practice

- Thesis: The association between orthostatic hypotension and cognition in a 75+ population on antihypertensive medication* http://archinte.jamanetwork.com/article.aspx?articleid=2429535

  **LUMC departments Neuropsychology, Neuroradiology, General Practice, Internal Medicine, Psychiatry, Neurology*

- Internship: Neuro-feedback: diagnostic work-up and training
  Brain Center Amsterdam

CNP Program: 1st semester

1st semester														
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Adult and old-age clinical neuropsychology: T&A Adult and old-age clinical neuropsychology: CP														10
Child neuropsychology of neurodev. disorders: T&A Child neuropsychology of neurodev. disorders: CP														10
Start Master's Thesis (choose topic, read literature, etc)														20
Optional: Electives														

CNP Program: 2nd semester

2nd semester																			
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Intervention strategies in clinical neuropsychology							5	Intervention strategies in clinical neuropsychology: practical training												5
Master's Internship 20 ECTS																				
Optional: Electives																				

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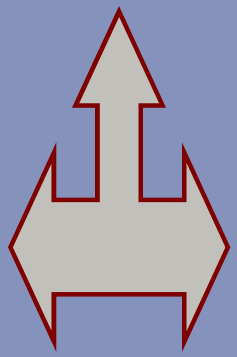
- Leiden Neuropsychology master is uniquely linked with patient care and clinical research
- Neuropsychology across the life-span: child, adult and old-age Neuropsychology
- Diagnostics *and* interventions.
- Teaching by clinically active and qualified neuropsychologists
- Outstanding facilities (LUMC < > FSW)
- Oldest and largest Neuropsychology department in the NL
- Leiden University= research intensive and 'intimate' top university



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Any questions?