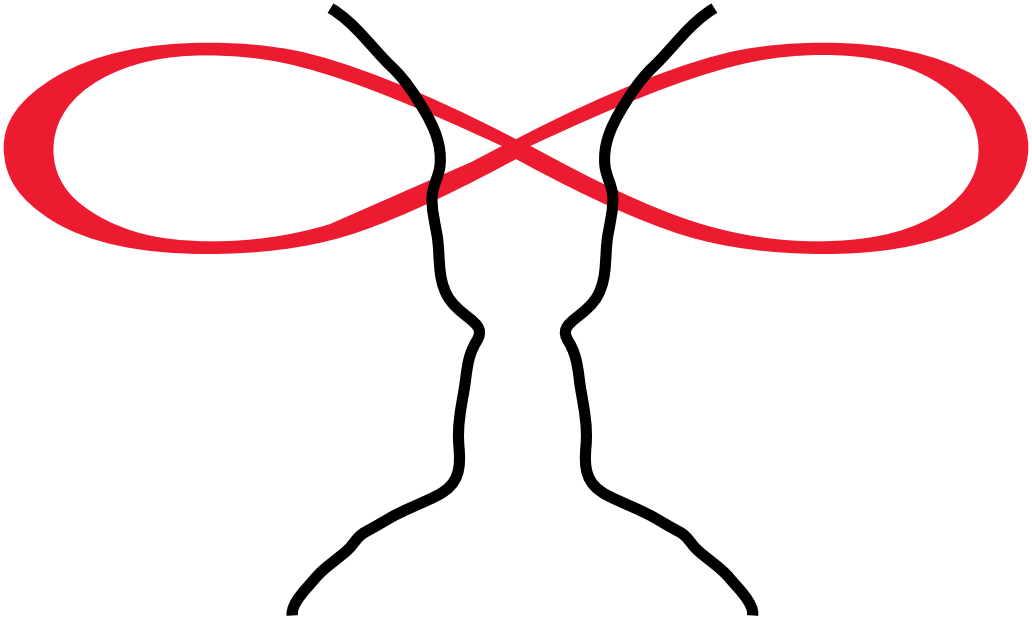

THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

AALBORG | DENMARK
15-18 AUGUST 2010
WWW.NEUROPSYCHOLOGY2010.COM

PROGRAMME AND ABSTRACTS

10TH NORDIC MEETING IN NEUROPSYCHOLOGY

THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

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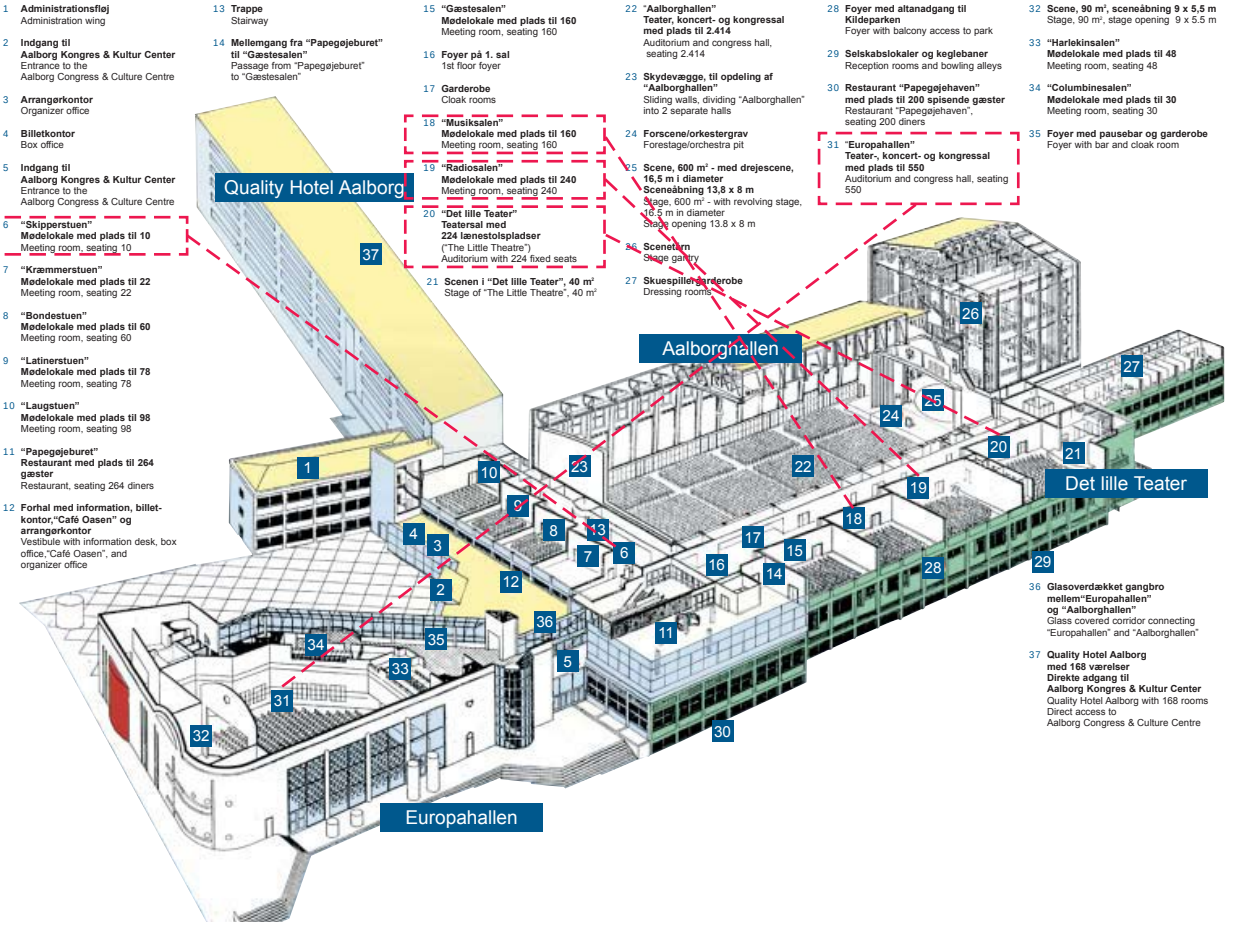
TIME	SUNDAY AUGUST 15TH	MONDAY AUGUST 16TH
8:30		8.30-9.00: Uta Frith: Autism: Theory of Mind Revisited *Europahallen*
9:00		
9:30		9.00-10.00: Francesca Happé: Autism: Central Coherence Revisited *Europahallen*
10:00		10.00-10.30: Coffee/Tea *Room 35*
10:30		**10.30-12.30: SYMPOSIUM 1-3** Nr. 1: *Room 19* Nr. 2: *Room 18* Nr. 3: *Room 20* **10.30-12.30: ORAL PAPER SESSION 1** *Childhood: Development and Dysfunction* *Europahallen*
11:00		
11:30		
12:00		
12:30		12.30-13.30: Lunch *Room 11, 14 and 15*
13:00	**13:00-16:00: WORKSHOPS** ***Workshop 1***: *Lucia W. Braga:* *Cerebral Palsy and Traumatic Brain Injury: A Family-Based Approach to the Rehabilitation of the Child* ***Chairman: Anne Lise Christensen*** ***Workshop 2***: *Maria Råstam:* *Assessment of Adults with Asperger Syndrome* ***Workshop 3***: *Paul Burgess:* *Assessment of Executive Functions of the Frontal Lobe* ***Workshop 4***: *Anders Fjell:* *Brain and Cognition Through Lifespan Developmental and Age Related Changes in the Brain* *Workshops are held at* Aalborg University Hospital *(walking distance from the Congress Centre).*	
13:30		13.30-14.30: Martin Brüne: Social Cognition in Schizophrenia *Europahallen*
14:00		
14:30		14.30-15.00: Coffee/Tea *Room 35*
15:00		15.00-16.00: Paul Burgess: Executive Functions of the Frontal Lobe *Europahallen*
15:30		
16:00		**16.00-17.00: POSTER SESSION** *Room 16*
16:30		
17:00	**16.45: OPENING CEREMONY** 17.00- 18.00: ***Opening lecture 1***: *C.Neil Macrae:* *The Social Brain: Face and Person Perception* *Europahallen* 18.00- 19.15: ***Opening lecture 2*** *: Sarah-Jayne Blakemore:* *The Social Brain in Adolescence* *Europahallen* ***Chairman: Anders Gade***	
17:30		
18:00		
18:30		
19:00		19.00: Reception at Aalborg Congress & Culture Centre *Room 28*

INVITED SPEAKERS
SYMPOSIUMS
ORAL PAPER SESSIONS
POSTERS
WORKSHOPS
SOCIAL

PROGRAMME AT A GLANCE

AALBORG CONGRESS & CULTURE CENTRE - FLOOR PLAN

The 10th Nordic Meeting in Neuropsychology is held at Aalborg Congress & Culture Centre, Europa Plads 4, 9000 Aalborg.
The presentation preview room and the lecture rooms are indicated on the floorplan below:



1 **Administrationsfløj**
Administration wing

2 **Indgang til Aalborg Kongres & Kultur Center**
Entrance to the Aalborg Congress & Culture Centre

3 **Arrangørkontor**
Organizer office

4 **Billetkontor**
Box office

5 **Indgang til Aalborg Kongres & Kultur Center**
Entrance to the Aalborg Congress & Culture Centre

6 **"Skipperstuen" Mødelokale med plads til 10**
Meeting room, seating 10

7 **"Krämmerstuen" Mødelokale med plads til 22**
Meeting room, seating 22

8 **"Bondestuen" Mødelokale med plads til 60**
Meeting room, seating 60

9 **"Latinerstuen" Mødelokale med plads til 78**
Meeting room, seating 78

10 **"Laugstuen" Mødelokale med plads til 98**
Meeting room, seating 98

11 **"Papegøjeburet" Restaurant med plads til 264 gæster**
Restaurant, seating 264 diners

12 **Forhal med information, billet-kontor,"Café Oasen" og arrangørkontor**
Vestibule with information desk, box office,"Café Oasen", and organizer office

13 **Trappe**
Stairway

14 **Mellemgang fra "Papegøjeburet" til "Gæstesalen"**
Passage from "Papegøjeburet" to "Gæstesalen"

15 **"Gæstesalen" Mødelokale med plads til 160**
Meeting room, seating 160

16 **Foyer på 1. sal**
1st floor foyer

17 **Garderobe**
Cloak rooms

18 **"Musiksalen" Mødelokale med plads til 160**
Meeting room, seating 160

19 **"Radiosalen" Mødelokale med plads til 240**
Meeting room, seating 240

20 **"Det lille Teater" Teatersal med 224 lænestolspladser**
("The Little Theatre")
Auditorium with 224 fixed seats

21 **Scenen i "Det lille Teater", 40 m²**
Stage of "The Little Theatre", 40 m²

22 **"Aalborghallen" Teater, koncert- og kongressal med plads til 2.414**
Auditorium and congress hall, seating 2.414

23 **Skydevægge, til opdeling af "Aalborghallen"**
Sliding walls, dividing "Aalborghallen" into 2 separate halls

24 **Forscene/orkestergrav**
Forestage/orchestra pit

25 **Scene, 600 m² - med drejescene, 16,5 m i diameter Sceneåbning 13,8 x 8 m**
Stage, 600 m² - with revolving stage, 16.5 m in diameter
Stage opening 13.8 x 8 m

26 **Scenetårn**
Stage gantry

27 **Skuespillergarderobe**
Dressing rooms

28 **Foyer med altanadgang til Kildeparken**
Foyer with balcony access to park

29 **Selskabslokaler og keglebaner**
Reception rooms and bowling alleys

30 **Restaurant "Papegøjehaven" med plads til 200 spisende gæster**
Restaurant "Papegøjehaven", seating 200 diners

31 **"Europahallen" Teater-, koncert- og kongressal med plads til 550**
Auditorium and congress hall, seating 550

32 **Scene, 90 m², sceneåbning 9 x 5,5 m**
Stage, 90 m², stage opening 9 x 5.5 m

33 **"Harlekinsalen" Mødelokale med plads til 48**
Meeting room, seating 48

34 **"Columbinesalen" Mødelokale med plads til 30**
Meeting room, seating 30

35 **Foyer med pausebar og garderobe**
Foyer with bar and cloak room

36 **Glasoverdækket gangbro mellem"Europahallen" og "Aalborghallen"**
Glass covered corridor connecting "Europahallen" and "Aalborghallen"

37 **Quality Hotel Aalborg med 168 værelser Direkte adgang til Aalborg Kongres & Kultur Center**
Quality Hotel Aalborg with 168 rooms Direct access to Aalborg Congress & Culture Centre

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MAIN CONTACT ADDRESS

The 10th Nordic Meeting in Neuropsychology is held at:
Aalborg Congress & Culture Centre
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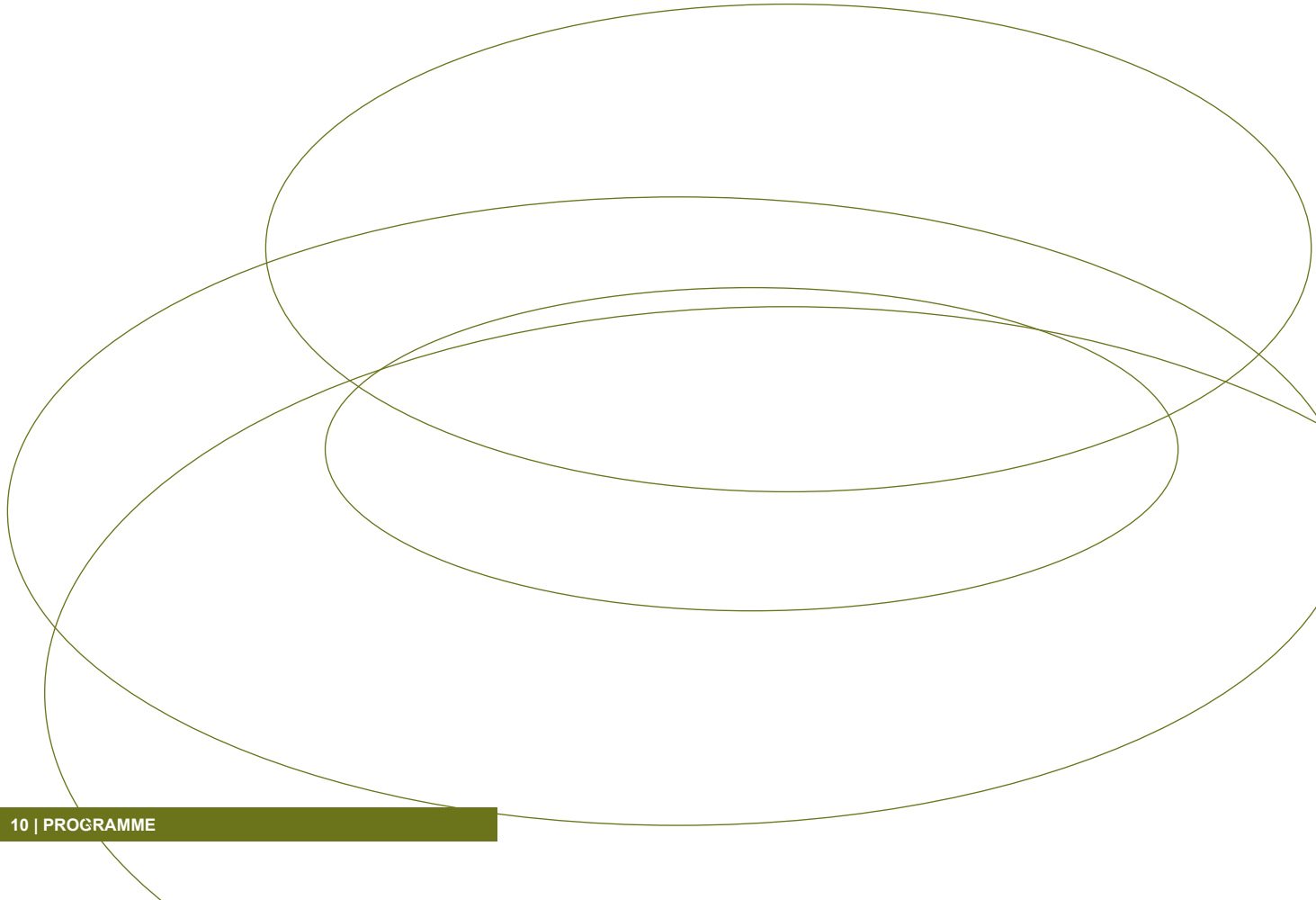


WELCOME FROM THE ORGANISERS

Dear Friends and Colleagues

On behalf of “The Danish Child & Youth Neuropsychological Society” and “The Danish Neuropsychological Society”, it is our great pleasure to welcome you to the 10th Nordic Meeting in Neuropsychology.

The Conference theme is ”The Social Brain: Development and Dysfunction”. We will bring together Nordic and International experts with diverse backgrounds to address variations on the main topic. Furthermore, an important aspect of the conference will be linking science with profession.

With this event we intend to:

- Share knowledge and experience, and to reflect and debate the fields of Neuropsychology
- Discuss innovative research and intervention practices in Neuropsychology
- Share good practice in the field of Neuropsychology

EXPERIENCE DENMARK

We invite you to visit the beautiful city of Aalborg. The city is placed at the North of Jutland close to the beautiful white sand beaches of the North Sea and Skagen.

Aalborg has become a place where the old and the new join together producing a vibrant city. Aalborg has a picturesque, historic city centre with narrow, winding streets, wonky old houses and interesting galleries along with the Utzon Waterfront which has outstanding new architecture and recreational surroundings.

It has everything to help you enjoy the great scientific level presentations within the fields of Neuropsychology, using your spare moments to enjoy the marvellous city.

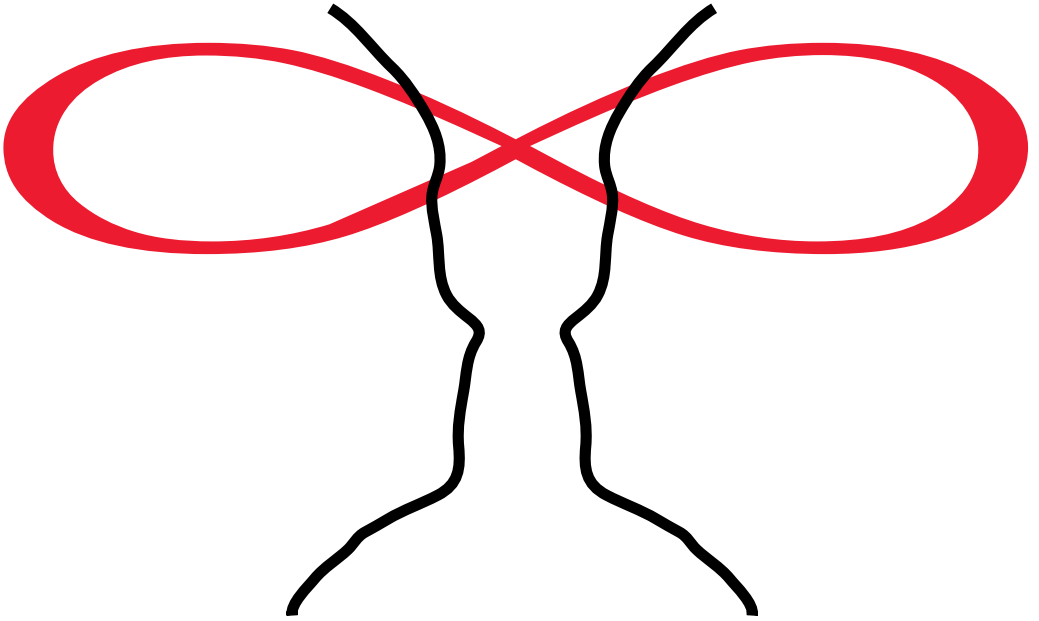
Skagen is at the very northern tip of Jutland where the seas meet. It is the place, where the famous Skagen school of painters lived and depicted the very special light in the area and the life of the fishermen. Now to be seen in the Skagens Museum.

Our colleagues are preparing an outstanding and extraordinary event in regard to the program, the setting and the facilities available. We hope you will find your participation rewarding and we look forward to welcome you to Aalborg!

Lotte Fensbo
President of The Danish Child & Youth Neuropsychological Society

Jesper Andersen
President of The Danish Neuropsychological Society

Malene Schmidt Stoltze Rasmussen
Chair of Organising Committee



MAIN THEME

THE SOCIAL BRAIN: DEVELOPMENT AND DYSFUNCTION

The new field of social cognitive neuroscience is increasingly relevant and important for neuropsychology.

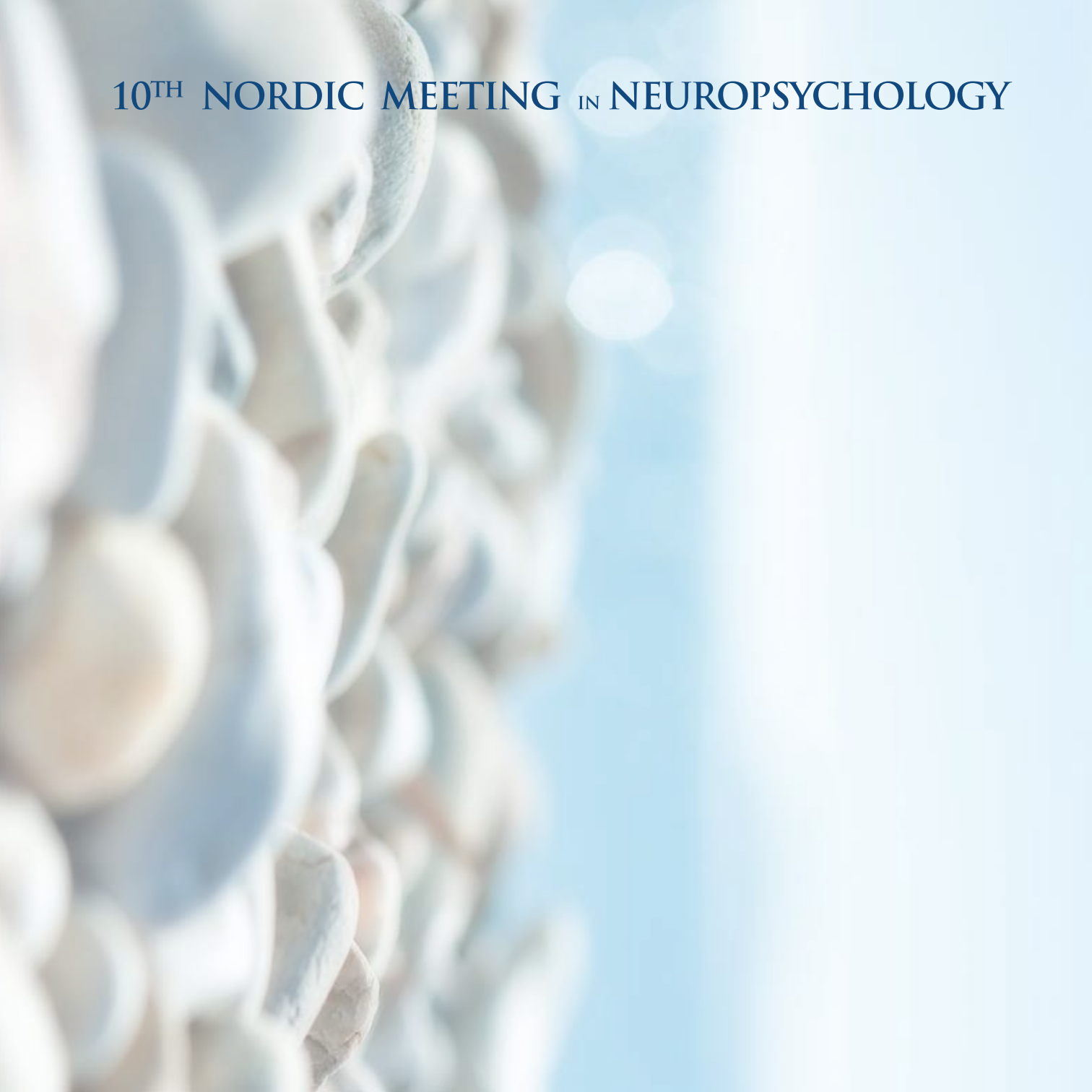
Perception of emotional expressions and feelings, understanding of intentions, actions, thoughts and emotions in both self and others, perception of social signals, the link between emotion and reason, empathy, morality, emotional and social skills, and the relations between social cognition and executive functions of the brain are some of the topics to be highlighted.

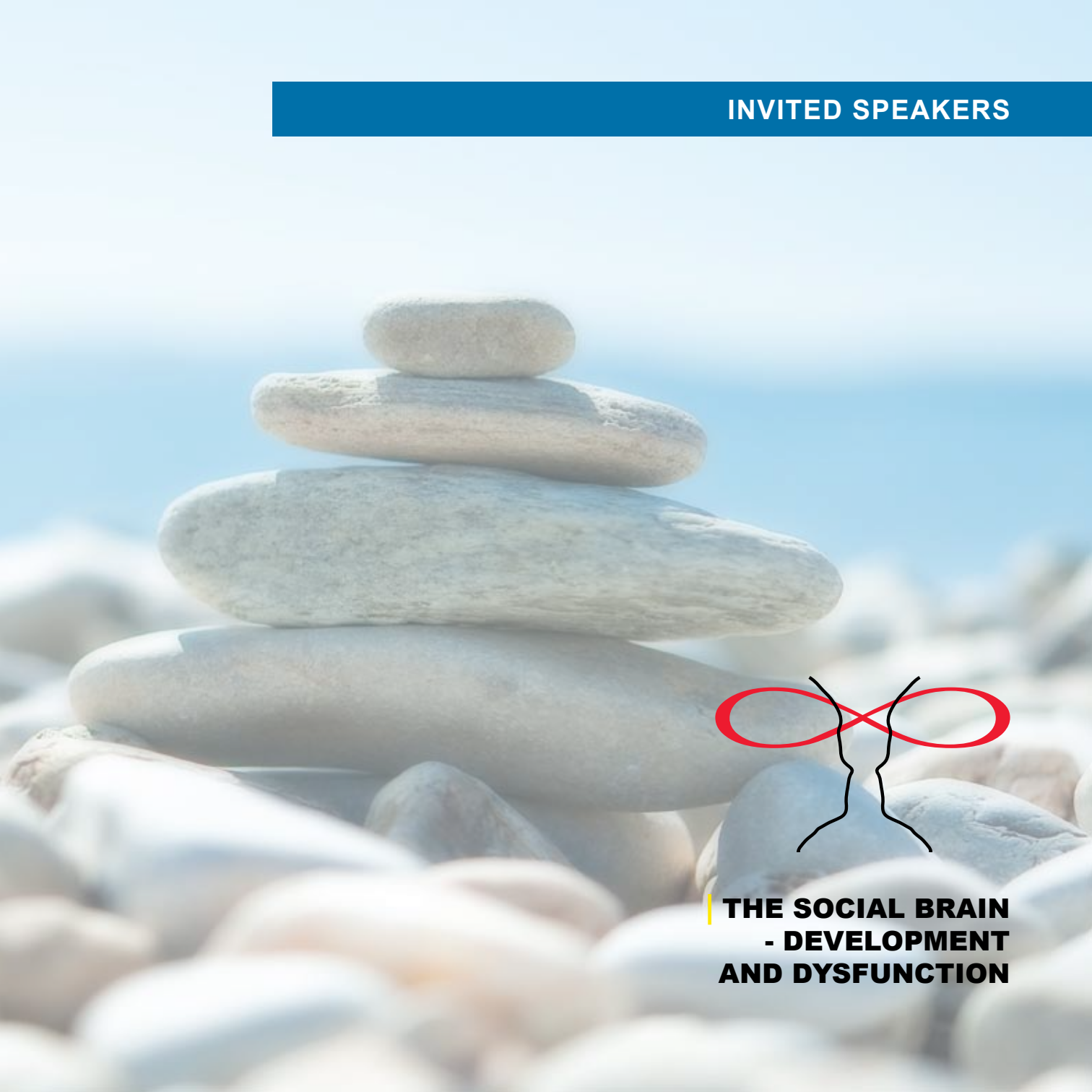
Methods and concepts initially used in autism and neuroimaging research are now being adapted to and used in patient studies. We want to focus on this exciting development in neuropsychology, and we have invited prominent speakers on both basic research in social cognition and neuroscience and their applications to clinical patient groups.

Among the topics are: Development of the social brain. The social brain and emotions, music and belief. Social cognition in specific disorders such as ADHD, autism, frontal lobe lesions, frontotemporal dementia, psychopathy, schizofrenia. Rehabilitation. Neuroimaging of the developing brain.

We welcome contributions (posters and free oral presentations) from participants in all fields of child and adult neuropsychology, and we particularly invite proposals for symposia on aspects of the social brain.

10TH NORDIC MEETING IN NEUROPSYCHOLOGY





THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

I - 1

THE SOCIAL BRAIN: THE FACE AND PERSON PERCEPTION

C. NEIL MACRAE

Presentation Sunday 17.00

Everyday social interaction is often dominated by categorical thinking, with generic knowledge structures (e.g., stereotypes) guiding people's dealings with others. The primary benefit of categorical thinking is thought to reside in the cognitive economy it provides during impression formation and response generation. Challenging this viewpoint, the current talk will suggest that the origins of categorical thinking lie instead in the workings of early perceptual operations. A series of behavioural and imaging experiments will be described that explore: (i) the efficiency of person categorization; (ii) the conditions under which person categorization and identification go awry; and (iii) how stereotype-based beliefs shape the neural operations that support person understanding.

C. Neil Macrae
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www.abdn.ac.uk/scl/macrae_pubs.htm

Neil Macrae is a professor in social psychology from Aberdeen where he completed his ph.d. in 1990. He is currently professor of social cognition. His research is on core aspects of social cognition (e.g. person understanding, self) using both behavioural and neuroimaging approaches.
Neil Macrae is among the pioneers of social cognition, contributing (with M. Hewstone) the entry (article) on "social cognition" The Blackwell dictionary of cognitive psychology already in 1990. Lately, many more social psychologists have flocked to the brain scanners to resolve longstanding social and philosophical questions (such as questions of self) with neuroimaging methods.

Sarah-Jayne Blakemore
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E-mail: s.blakemore @ ucl. ac.uk
http://sites.google.com/site/blakemorelab/

Sarah-Jayne Blakemore is leader of the Developmental Cognitive Neuroscience Group at University College of London, which focuses on the development of social cognition: mentalising, emotions, action understanding and executive function during adolescence. A second focus of her research is on social cognitive deficits in autism spectrum disorders. She studied experimental psychology at Oxford (1993-1996), and did a ph.d. (1996-2000, with Chris Frith and Daniel Wolpert) on self-monitoring of action in normal subjects and schizophrenia. She then worked 2 years in Lyon, France, with Jean Decety, on perception of causality. She has been at UCL since 2004.

Sarah-Jayne Blakemore is co-editor-in-chief of the new journal Developmental Social Neuroscience.

I - 2

THE SOCIAL BRAIN IN ADOLESCENCE

SARAH-JAYNE BLAKEMORE

Presentation Sunday 18.00

Adolescence is a time characterised by change - hormonally, physically, psychologically and socially. Yet until recently this period of life was neglected by cognitive neuroscience. In the past decade, research has shown that the brain develops both structurally and functionally during adolescence. In this talk I will focus on research looking at how the social brain changes in adolescence.

I - 3

AUTISM: THEORY OF MIND REVISITED

UTA FRITH

Presentation Monday 8.30

The Theory of Mind (ToM) deficit hypothesis of autism now has a 25-year history with some rocky patches. The bold proposal made by Baron-Cohen, Leslie & Frith in 1985 was that a lack of a ToM or mentalising mechanism caused the core social impairments of autism. A neural basis of this mechanism was postulated and it became possible to investigate this via brain imaging techniques. However, based on a meta-analysis Happé (1994) showed that able individuals with autistic disorder were capable of solving ToM problems, albeit with a delay. Recently, an implicit version of the standard False Belief scenario was developed, which makes it possible to detect implicit mentalising ability in very young babies using eye tracking techniques.

This technique revealed that autistic adults who pass a wide range of standard ToM tests still do not possess a spontaneous implicit mentalising ability. Research has also addressed the ability to attribute feelings to oneself, and here too characteristic impairments have been found in autistic individuals, related to alexithymia. Thus, a ToM deficit in autism can be revealed in behaviour as well as in brain activation patterns, and is able to explain a wide range of phenomena in autism.

Uta Frith
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Uta Frith is Emeritus Professor in Cognitive Development. She has published many papers and books on autism and dyslexia. Her most well known book is "Autism: Explaining the Enigma" (1989; Danish edition 1992, Reitzel; 2nd ed. 2003) which provides an introduction to the cognitive neuroscience of autism. Her influence on the field can be seen in a book edited by Dorothy Bishop, Margaret Snowling, & Sarah-Jayne Blakemore "Neurocognitive approaches to developmental disorders: A Festschrift for Uta Frith", Psychology Press, 2008 (Special issue of Q. J. Exp. Psychol.). She is Visiting Professor at Aarhus University, where she is participating in the project on "Interacting minds - a biological basis".

Francesca Happé
MRC Social, Genetic and Developmental Psychiatry Centre, Institute of Psychiatry (Po 80), King's College, De Crespigny Park, Denmark Hill, London SE5 8AF, UK

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www.iop.kcl.ac.uk/staff/profile/default.aspx?go=10942

Francesca Happé is Professor in cognitive neuroscience at the MRC Centre for Social, Genetic and Developmental Psychiatry. She is a leading autism researcher and is currently contributing to the revision of the entry for Autism in the DSM of the American Psychiatric Association. She is well known for her Strange Stories test, an advanced test of Theory of Mind, which is widely used. She has reformulated the weak central coherence hypothesis and has proposed that a detail-focused cognitive strategy can be found also in the neurotypical population. In 1994 Happé published a best-selling book on Autism; an introduction to psychological theory, also translated into Danish.

I - 4

AUTISM: CENTRAL COHERENCE REVISITED

FRANCESCA HAPPÉ

Presentation Monday 9.00

Our recent research suggests that the triad of impairments that defines autism (social, communication and rigid/repetitive behaviour) may be "fractionable". That is, the phenotypic and genetic correlation between traits in these three areas is modest, and many individuals can be found with difficulties in only one of the three triad domains. At the cognitive level, too, there appears to be no single theory able to account for all aspects of the triad, and instead different theories may be needed to explain the social and communicative deficits and the non-social impairments and strengths.

This presentation will review recent research on "cognitive style" in autism spectrum disorders (ASD), and the "weak central coherence" account which postulates superior processing of details at the cost of processing global and contextual information.

While this theory aims primarily to explain why people with ASD are so good at some (non-social) tasks, it may also interact in relevant ways with the core social deficits in mentalising. While autism may be fractionable, representing the (non chance) co-occurrence of abnormalities in several cognitive mechanisms (including theory of mind and central coherence), autism is also more than the sum of its parts: problems in reading minds will look different in a person who has weak coherence, and vice versa. This presentation will review the latest research on weak coherence in autism, and discuss its implications for understanding social and non-social aspects of ASD.

I - 5

SOCIAL COGNITION IN SCHIZOPHRENIA

MARTIN BRÜNE

Presentation Monday 13.30

The term “social cognition” refers to the ability to represent one’s own and others mental states in terms of beliefs, desires, knowledge, intentions and feelings. In its broader meaning social cognition also embraces the perception of emotions from facial expressions, body posture and prosody. “Hardware” components that are necessary for social cognitive processes comprise a neural network that entails cerebral midline structures including the medial prefrontal cortex, the precuneus, the temporo-parietal junction and limbic structures such as the anterior cingulate cortex and the anterior insula. These brain circuits contain cells that seem to be specific to gregarious animals, especially primates. Research into the mirror neuron system and von Economo neurons has received great attention in the recent past. Numerous studies have shown that people with schizophrenia have profound deficits in one or the other aspect within the social cognitive domain. For example, schizophrenia patients have difficulties in appreciating the mental states of other individuals, they are often impaired in reflecting upon own mental states, and hence have difficulties in making sense of other people’s behaviour.

This presentation highlights some new findings regarding social cognition in schizophrenia, most of which have theoretically been derived from insights of evolutionary theory and the evolved function of social cognitive abilities.

Martin Brüne
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Martin Brüne is a professor of psychiatry and director of the Research in Cognitive Neuropsychiatry. He completed training in neurology in 1993 and in psychiatry in 1995. His main research interests concern various aspects of social cognition, in particular in schizophrenia and other psychoses. He co-edited the book “The social brain: Evolution and pathology” in 2003, and current research includes analyses of the association of social cognition with social function, nonverbal behavior, insight, and social prognosis in psychosis.He is also involved in cross-cultural research on delusions. and has longstanding interest in the evolutionary aspects of psychiatric disorders. He is the author of the recent “Textbook of evolutionary psychiatry”, published by OUP in 2009.

Paul W. Burgess
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Professor Paul Burgess has a longstanding interest in executive functions and the frontal lobes. He has created a number of the neuropsychological tests used in the clinic (e.g. BADS battery, six elements test), and he has contributed greatly to the understanding of the role of the most anterior (rostral) parts of the frontal lobes in the planning and organization of behavior. The rostral prefrontal cortex (area 10) was until recently unknown territory, but thanks to Paul Burgess and his coworkers, this enigmatic part of the brain is finally yielding to scientific efforts ("BA10 is boss"!). An initial paper in this research line (Shallice & Burgess, 1991) is among the most cited in neuropsychology (802 citations by last count).

I - 6

EXECUTIVE FUNCTIONS OF THE FRONTAL LOBE

PAUL W. BURGESS
Presentation Monday 15.00

The concept of the "executive functions" of the frontal lobe originated in neuropsychological studies of neurological populations in humans aimed at determining the roles of the frontal lobes in cognition. It is an umbrella term for a very wide range of abilities that enable us to adapt new ways of behaving. Since many, if not most, social situations are "novel" in the sense that they are not exactly the same as previously encountered, it is not surprisingly if deficits in executive function have effects upon social behaviour. Moreover, some aspects of frontal lobe function seem dedicated to social and emotional behaviour.

However, research into frontal lobe executive functions and investigations in the field of social cognition have historically developed largely independently. But recent years have seen the importing of many of the procedures and techniques from human neuropsychology into fields relevant to understanding social cognition, and vice-versa. The most obvious of these relates to the study of cognition in autism spectrum disorders (ASD) and other developmental conditions. At the head of this advance lies the huge recent step forward in our understanding of a large part of the brain: rostral prefrontal cortex (approximating BA 10).

We now know that rostral PFC supports processing relating to a wide variety of cognitive abilities which are critical to competence in everyday life. These include multitasking and prospective memory, high-level memory control (e.g.) source and context memory, metacognition, social cognition (including some forms of mentalizing), and dealing with "open-ended" situations. Recent evidence from our lab and others shows that these abilities can be impaired independently from "IQ" and many other mental capacities. The new methods we have developed to investigate competence in these domains, ostensibly for neurological populations, are now starting to be applied to the study of atypical development in children. As this occurs, it is becoming clear that people with ASD often show disruption of the abilities supported by rostral PFC. However, this disruption cannot be captured within a "deficit model". Instead, it is characterised by abnormal variation which might be the hallmark of a disruption in the course of functional specialisation of this brain region. This kind of interaction between the methods and theories prevalent in the two erstwhile separate fields (neuropsychology and developmental psychology), typified by the emerging field of social neuroscience, promises to radically change practice in both fields.

I - 7

DEVELOPMENT OF THE PSYCHOPATHIC BRAIN

ESSI VIDING

Presentation Tuesday 8.30

Psychopathy is an adult diagnosis comprised of both callous-unemotional personality traits (lack of empathy and guilt) and overt antisocial behaviour. One can also find children who exhibit callous-unemotional subtype of antisocial behaviour and who are at an increased risk for developing psychopathy.

Research from our lab and others has documented that callous-unemotional traits are heritable. More interestingly, when we study subgroups of antisocial children with/without callous-unemotional traits, we find strong genetic influence on antisocial behaviour in the former group, but not in the latter. Our finding supports the view that children at risk for psychopathy form a distinct subgroup with a genetic vulnerability to antisocial behaviour and I will present some preliminary genome-wide association data relating to this group of children.

Genetic vulnerability may underlie neurocognitive "abnormalities" associated with psychopathic traits. I will provide a brief overview of data from our and other labs investigating neurocognitive correlates of psychopathy/psychopathic traits. Our ongoing research combines behaviour genetic and brain imaging methodologies and these efforts will be discussed at the end of the talk.

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www.icn.ucl.ac.uk

Essi Viding is a Finnish psychologist, who did her PhD (with Francesca Happé) and post-doc at the MRC Social Genetic and Developmental Psychiatry Centre at the Institute of Psychiatry, working with, among others, Robert Plomin. She is now at the faculty of Psychology at University College of London.

Essi Viding's research combines cognitive experimental measures, twin model-fitting, brain imaging, and genotyping to study different developmental pathways (environmental and genetic) to persistent antisocial behaviour.

Essi is a young researcher, but she has been very productive. In addition to her research papers, she recently edited a major book: Hodgins,S., Viding,E.,& Plodowski,A. (eds.) (2009) The Neurobiological Basis of Violence: Science and Rehabilitation. Oxford University Press.

Simone G. Shamay-Tsoory
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Simone Shamay-Tsoory is director of the Social and Affective Neuroscience Lab at Haifa University. She graduated from Ben Gurion University and did her PhD at Haifa University.

Her main research interests are in understanding the neural mechanisms underlying social cognition and emotional understanding. One focus has been on empathy and "competitive" emotions such as envy and gloating, and another has been on the differentiation and relative importance of emotional and cognitive aspects of theory of mind. She has studied patients with focal lesions in the frontal lobes and psychiatric patient groups.

I - 8

THE NEURAL BASIS OF COMPETITIVE EMOTIONS

SIMONE G. SHAMAY-TSOORY

Presentation Tuesday 9.30

A large corpus of evidence concerning social comparison processes indicates that relative material payoffs affect people's well-being and behavior. Envy and schadenfreude are competitive emotions related to social comparison. Envy is a negative reaction in the face of another person's good fortune while schadenfreude is the joy about the misfortune of another.

We propose that the neural network which mediates envy and schadenfreude involves the "mentalizing network" and the reward/punishment systems. To examine our model we conducted a lesion study, an fMRI study and a study involving administration of oxytocin.

These studies demonstrate differential patterns of activation in the reward and mentalizing networks in envy and schadenfreude.

The pattern of activation in the ventral striatum suggests that winning money can seem like a loss when another person wins a larger amount. Likewise, losing money can seem like a gain when another person loses more.

Finally, we show that the oxytocinergic system modulates the feeling of envy and schadenfruede. Specifically, intranasal administration of oxytocin increases ratings of envy and schadenfreude in competitive situations, suggesting that this hormone has a general role in negative as well as positive social behaviors.

Although it has been well established that humans are motivated to seek rewards and avoid punishments, our studies demonstrate that humans are as sensitive to social comparisons, that even a loss can induce joy when it is compared to another's greater loss. These processes seem to be mediated by the reward system and the oxytocinegic system.

I - 9

MUSIC, BELIEF AND THE SOCIAL BRAIN

MICHAEL R. TRIMBLE

Presentation Tuesday 16.00

The presentation will begin by emphasising the importance of music in relationship to an attribute of behaviour which would seem unique to humans, namely that of emotional crying. The approach taken will be from neuroanatomical and evolutionary perspectives, discussing the development of crying as a form of communication in ancestors of Homo sapiens, noting some neuroanatomical developments in the human brain which would seem to distinguish it from that of our nearest living primate ancestors, which may explain the development of emotional crying.

The presentation will then return to music, and the relationship between psychiatric illness and creative abilities in relationship to poets and musicians. Neuroanatomical associations between the non-dominant hemisphere of the brain, psychiatric illness and creativity will be outlined, linking the artistic expressions of such creativity with the early development of religion, again from an evolutionary perspective.

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Michael Trimble is emeritus professor in behavioural neurology. He was trained in cardiology, neurology and psychiatry, and his research has focused on the interface disorders between neurology and psychiatry, including behavioural consequences of neurological disorders, somatoform disorders, and epilepsy. He also has a continuing interest in neuroanatomy. He has co-authored the book "Anatomy of neuropsychiatry: The new anatomy of the basal forebrain and its implications for neuropsychiatric illness". Michael Trimble has for many years also been a student of poetry and has wide-ranging musical interests. These interests have led him to study the cerebral bases of artistic and religious experiences culminating in the book "The soul in the brain: The cerebral basis of language, art, and belief. Baltimore: Johns Hopkins Press, 2007. Michael Trimble has accepted to give the "galla-lecture" before the conference dinner.

I - 10

NEUROIMAGING OF THE DEVELOPING BRAIN

Kristine B. Walhovd
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humancognition.org/index.php/kristine-walhovd

Kristine Walhovd is professor in neuropsychology. She has a psychology degree from Oslo in 2001, is trained in neuropsychology, ERP techniques (with Reinvang) and MR morphometric analyses (with Anders Dale at Harvard). Together with Anders Fjell she obtained a Ph.D in 2005 (Integrating brain and behavior throughout the adult life-span). They now jointly lead a research program in Oslo to study the biological foundations of life-span changes with multiple methods, collaborating with a network of Norwegian and foreign reasearchers.

KRISTINE B. WALHOVD
Presentation Wednesday 9.00

The human brain undergoes tremendous development in childhood and adolescence, along with the emergence and improvement of cognitive and behavioral skills. Development of better neuroimaging techniques and tools for analysing images of the brain now yield new possibilities for studying brain development. Recent neuroimaging studies have shown that the volume of the cerebral cortex increases in preschool years, before later volumetric reductions set in. Dramatic developments also occur in white matter, which consists mainly of myelinated long-distance nerve fibers.

The brain is largely unmyleinated at birth, and myelin growth is an important part of brain development that continues well into adulthood. How does development of cognitive abilities follow the maturation of specific brain structures as measured by neuroimaging techniques, in particular morphometric and diffusion tensor imaging (DTI) measures? In addition to normal development of brain and cognition, neuroimaging studies of how risk factors such as prenatal substance exposure may alter the developing brain and later cogntive skills, are also discussed.

I - 11

FINDING PLEASURE IN THE BRAIN

MORTEN KRINGELBACH

Presentation Wednesday 9.00

The development of the social brain relies crucially on the early parent-infant relationship and these social pleasures have been shown to strongly influence future levels of pleasure and well-being. The talk will discuss how social pleasures and in particular the early parent-infant relationship are related to other fundamental pleasures. The talk will outline the evolving nature of the relationship, starting with basic orienting and recognition processes, and culminating in the infant's attainment of higher socio-emotional and cognitive capacities.

Key social and affective interactions, such as communication, cooperative play and the establishment of specific attachments propel the development of the parent–infant relationship. Overall, the talk will discuss how this research can help find more effective ways of alleviating the lack of pleasure, anhedonia, in mental illness both acutely and longer-term.

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Kringelbach is a senior research fellow at the Department of Psychiatry, University of Oxford. He also holds a Professorship in Neuroscience at the Center of Functional Integrative Neuroimaging (CFIN) in Aarhus. Kringelbach has written several books for the general public including "The Pleasure Center: Trust your animal instincts" (Oxford University Press, 2009). Together with his collaborator Kent Berridge he has edited the academic book "Pleasures of the brain" (OUP, 2010).

Morten Kringelbach received his D.Phil. from Oxford in 2001. His doctoral research used fMRI to investigate the functional neuroanatomy of emotion and in particular the role of the orbitofrontal cortex. The focus is on understanding the neural mechanisms of pleasure in its many forms.

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Christopher M. Kipps is a Consultant Neurologist and Honorary Senior Clinical Lecturer at Southampton University. More recently he worked with John Hodges in Cambridge and is now a consultant specializing in movement disorders and early dementia. He is an expert on social cognition and social function in frontotemporal dementia, where disorders in this domain may constitute the core deficits.

I - 12

SOCIAL COGNITIVE IMPAIRMENTS ARE THE CORE OF FRONTOTEMPORAL DEMENTIA

CHRISTOPHER M. KIPPS

Presentation Wednesday 10.30

Deterioration in social functioning is a core feature of frontotemporal dementia, particularly the behavioural variant of this disease (bvFTD). This manifests itself in varying degrees of apathy, disinhibition, social inappropriateness, poor judgement, lack of insight and loss of empathy. Patients with FTD may perform badly on social cognitive tasks such as the Iowa Gambling Task or tests of emotion recognition and Theory of Mind, and their carers strongly endorse the presence of behavioural features on frontal lobe rating scales.

The distribution of neuropathology within the frontal and temporal lobes of the brain mirrors the regional activations seen on functional imaging studies of social cognition in normal subjects, providing supporting evidence of the role of these brain regions in normal and abnormal social processing. This disorder provides a model for understanding aspects of social cognition.

I - 13

TRAINING AND PLASTICITY OF WORKING MEMORY

TORKEL KLINGBERG

Presentation Wednesday 10.30

Working memory is the ability to keep information in mind for a brief period of time, typically a few seconds. In daily life, we use working memory to remember plans or instructions of what to do next, and for controlling attention. Lower working memory is associated with distractability and deficits in working memory is a key deficit in attention deficit/hyperactivity disorder (ADHD).

Klingberg and collaborators have developed and tested a computerized method for training working memory. Several studies have shown that working memory can be improved by this method, and that this decreases the symptoms of inattention. This has now been confirmed by several, independent studies. Klingberg and collegues has also shown that training of working memory increases brain activity in frontal and parietal regions, and is associated with changes in the density of dopamine D1-receptors in the cortex.

Training of working memory might thus be a non-pharmacological way to address the key cognitive function of ADHD and thereby significantly and sustainably reduce the inattentive symptoms of this disorder.

Future question concern which other cognitive functions that can be trained, and how strong transfer is between functions. Training of inhibitory functions has given negative results, but one study with training of non-verbal reasoning in 4-year old children show evidence of transfer to non-trained reasoning tasks as well as working memory.

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Torkel Klingberg is (since 2006) professor of cognitive neuroscience at the Karolinska Institute, where he heads a research group in developmental neuroscience located at the MR-laboratory. His Ph.D. from 1997 was based on studies of working memory, and after completing a medical degree in 1998 he spent two years at Stanford University. His research is mainly based on neuroimaging studies. Torkel Klingberg's research is focused on the neural bases of cognitive development during childhood and training induced changes in brain function in both normal development and clinical groups such as ADHD. This includes the development of computerized methods for improving attention and working memory in children. Much of his research integrates neuropsychology and neuroimaging. He has written the popular science book The overflowing brain: information overload and the limits of working memory (2008).

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Shihui Han is professor of psychology and director of the Cultural and Social Cognitive Neuroscience Laboratory. Since 2003 he also serves as chair of the department. Shihui Han's early scientific work (1997-2006) was in visual perception and attentional mechanisms, including neural mechanisms of perceptual grouping and local/global processing.
Culture affects the psychological structure of self, and differences in self-representation exist between a western more independent self and an east-asian more interdependent self. Much of the work of Shihui Han and his research group is directed towards elucidating the neural bases of these and other cultural influences (e.g. religion) on self and other aspects of social cognition such as empathy and theory of mind. In this, he uses both neuroimaging and electrophysiological methods. Han is an associate editor of the journal Social Neuroscience.

I - 14

SELF REPRESENTATION IN THE HUMAN BRAIN — THE INFLUENCE OF CULTURAL AND SENSORY EXPERIENCES

SHIHUI HAN

Presentation Wednesday 11.30

Neural plasticity enables the human brain to change its functional architecture through different experiences in order to adapt to environmental pressures. I'll present our recent brain imaging studies that show evidence that both cultural and sensory experiences shape the neural basis of self-representation in the human brain. I'll discuss how cultural and sensory experiences influence neural representation of the self in the medial prefrontal cortex differently and the implication of our brain imaging findings for the understanding of self-concept.

I - 15

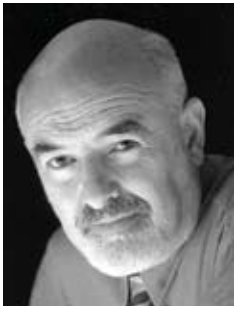
THE SOCIAL BRAIN: SUMMING UP AND LOOKING AHEAD

CHRIS FRITH

Presentation Wednesday 13.30

In the last 20 years we have learned much about the social brain. This knowledge has derived from brain imaging and the study of psychiatric and neurological patients. Many of the pioneers of these studies have presented their latest results at this meeting and two major processing systems stand out in terms of the amount of interest they received. One of these is the brain system that allows us to mentalise (have a "Theory of mind"); the other is the brain's mirror system or rather, systems. Until recently we thought that mentalising was a high level executive skill that required mental effort. However, new data shows that there is also an implicit and largely automatic component of mentalising and therefore, exploring the relationship between implicit and explicit mentalising is an important topic for the future. The relationship between the mentalising system and the brain's mirror systems remains a controversial topic. In order to resolve this controversy we need to develop a computational account of the mentalising process.

One idea is that the mirror system can be used to make predictions about an observed person's next movement. This generates a prediction error, which the mentalising system can use to update representations of intentions and other mental states. However, I suggest that we need to explore the idea that there is a fundamental conflict between mirror and mentalising systems. Through a form of contagion, mirror systems optimise interactions when the people involved have common knowledge, goals and intentions. In contrast, the mentalising system monitors the differences between the knowledge and intentions of the self and the knowledge and intentions of others. For optimum functioning of this process, social contagion must be suppressed.



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Chris Frith is now an Emeritus professor. With over 400 publications, he is one of the most cited authors in neuroscience. He has been a leading force in social cognitive neuroscience since its beginning. He has supervised work of a number of the most prominent second generation researchers in this field. He is also Niels Bohr Professor at CFIN, University of Aarhus, where he is leading the project on "Interacting minds - a biological basis". His primary interest is in the applications of functional brain imaging to the study of higher cognitive functions in humans, in particular social cognition. He is also well known for his earlier seminal work characterising the cognitive basis of schizophrenia.
Chris Frith will give the final lecture of the conference, including a summing up of the field and the conference, and his perspective of the future of the study of the "social brain".

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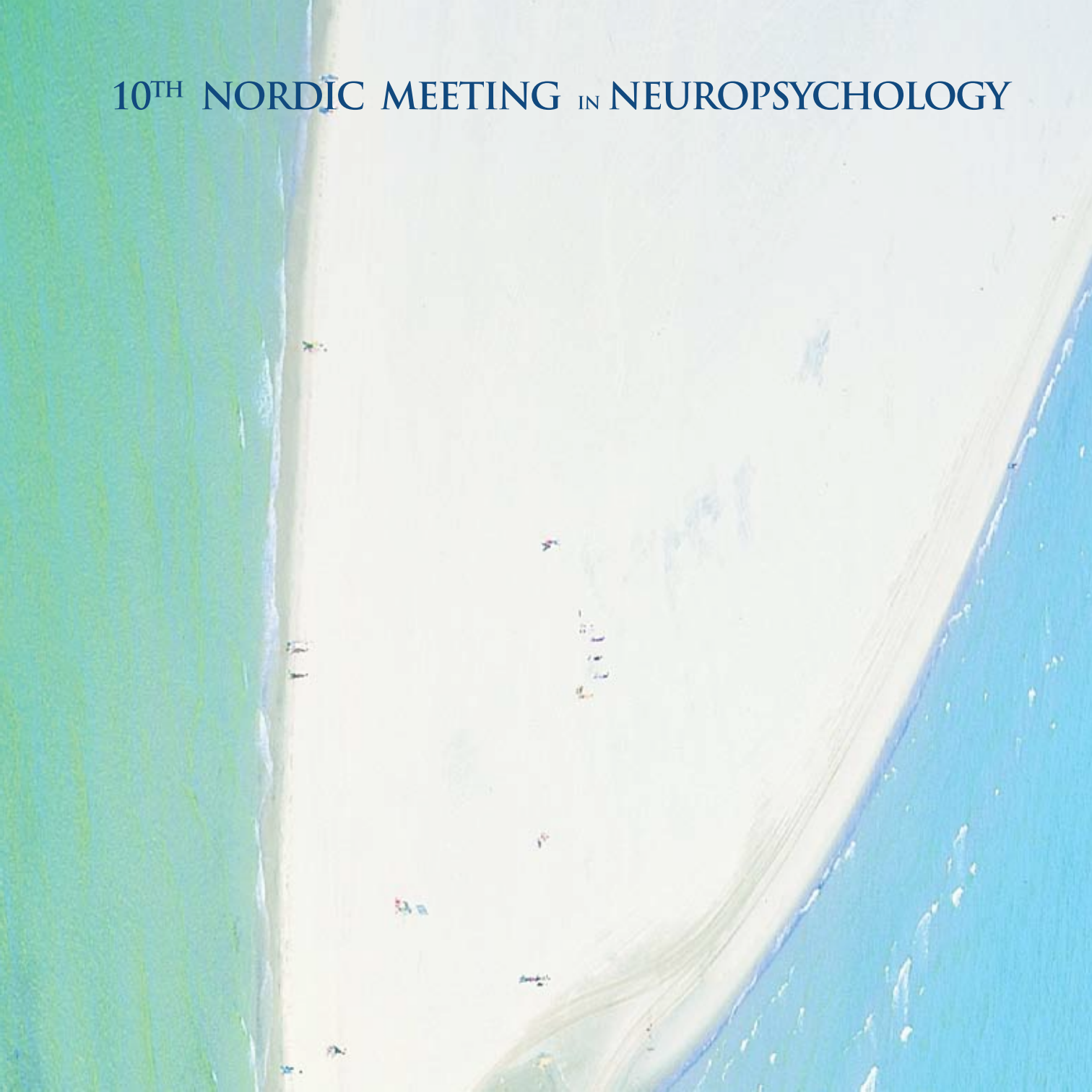

THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

S - 1

NEUROCOGNITION AND EMOTIONAL PROCESSING IN PSYCHIATRIC DISORDERS

Merete Glenne Øie and Erik Hessen (organizers)

Subjects with major depressive disorders, bipolar disorder, schizophrenia and borderline personality disorder often have difficulties in cognitive- and emotional regulation, and research from Norway on these topics will be presented at the Symposium.

Impairment in Executive Functioning (EF) in the acute phase of recurrent Major Depressive Disorder (MDD) is well documented. However, only few studies have investigated EF in MDD during the first depressive episode, and findings are inconclusive. Further, previous studies suggest that cognitive impairment worsens for every episode of depression. The aim of an ongoing study is to assess the role of diagnostic subtype on performance in EF in patients with first episode MDD (FE) and patients with recurrent MDD (RC).

Marit Schmid will present preliminary results from the study “Executive functioning in patients with First episode Major Depression and in patients with Recurrent Major Depression”. Understanding how depression affects basic processing of emotional information is important in the understanding of acute depression and how it affects patients socially. Furthermore, it is important to obtain a better understanding of the recovery from depressive symptoms, and how patients’ basic processing of social cues in the surroundings changes in this phase.

Mari Strand will present data from the study “Emotional information processing in Major Depressive Disorder” She will present preliminary data from a study of performance on an emotional stroop task, including 20 depressed patients in recovery and remission, and 20 controls.

Carmen Simonsen will discuss how neurocognition and psychosocial function varies across and within bipolar disorder and schizophrenia. Neurocognitive function seems to be better determined by history of psychosis than by diagnostic category or subtype. Clinician-rated functioning, but not self-rated functioning, depends on diagnostic category. Current symptomatology seems to have greater independent contribution than neurocognition to psychosocial functioning, irrespective of diagnostic category or history of psychotic and affective episodes. This suggests that individuals with bipolar disorder, as well as individuals with schizophrenia require neurocognitive and psychosocial assessment, cognitive remediation and psychosocial interventions.

Early-onset schizophrenia is rare, and the course of illness is characterised by an insidious onset, poorer cognitive function and poorer outcome compared with the adult-onset group. They are often less motivated and become easily tired during assessment. Thus, it is of importance to have a well-designed neuropsychological battery, and to select the right measures when assessing these patients. Aina Holmén will focus on the characteristics of cognitive deficits in adolescents with schizophrenia. Which measures should be used in assessment of executive functions in this patient group? She will present a neuropsychological profile on patients with onset of

the disorder before the age of 18, measured with the MATRICS battery.
Borderline personality disorder (BPD) is characterized by disturbed relational abilities, affective dysregulation, and lack of behaviour control. Dysfunctions in the neural systems for affect regulation, behaviour regulation, and social cognition, are assumed to constitute the neurobiological foundations of the disorder. Executive functioning has been identified to constitute a selective deficit in a neuropsychological profile analysis in patients with BPD. Vegard Øksendal Haaland will focus on possible associations between emotional dysregulation and neuropsychological performance in patients with BPD. More specific, associations between emotional dysregulation and working memory, executive functioning, social cognition, and autobiographical memory will be discussed.

Authors:
Stand, Mari; PhD fellow, Psychologist, Marit Therese Schmid, PhD fellow, Bergen: Longitudinal studies of major Depressive Disorder (MDD) – cognitive functioning and emotional information processing.

Holmén, Aina; PhD fellow, psychologist, Oslo: Adolescents with schizophrenia-spectrum disorders : neuropsychological profile.

Haaland, Vegard Øksendal; PhD, neuropsychologist, Oslo: Possible associations between emotional dysregulation and neuropsychological functioning in borderline personality disorder

Simonsen, Carmen; PhD fellow, psychologist, Marit Therese Schmid PhD fellow: Neurocognition and psychosocial function in bipolar disorder.

S - 2

FRONTOTEMPORAL DEMENTIA

Jette Stokholm (organizer)

Frontotemporal dementia (FTD) is an umbrella term for a diverse group of neurodegenerative disorders that primarily affect the frontal and anterior temporal lobes of the brain. Most patients with FTD undergo dramatic changes in their personality and become socially inappropriate, impulsive or emotionally blunted, while others lose the ability to use and understand language. The symposium will give an introduction to different aspects of FTD.

Authors:
Stokholm, Jette; Neuropsychologist, Copenhagen: From Pick´s disease to frontotemporal dementia.

Kipps, Christopher; MD,PhD: Clinical presentations of frontotemporal dementia.

Johannsen, Peter; MD, PhD, Copenhagen: Patoanatomical and genetic aspects of frontotemporal dementia.

Gade, Anders; Senior lecturer, Copenhagen: FTD-3: A Danish variant of frontotemporal dementia.

S - 3

SEROTONIN, EMOTIONS AND THE SOCIAL BRAIN

Anders Gade (organizer)

Multiple lines of evidence from animal and human research relate the neurotransmitter serotonin to aspects of emotions, personality and social behaviour, and this neurotransmitter system is targeted in drug treatment of mood and anxiety disorders. A major research program in Copenhagen (Cimbi) focuses on the neural bases - serotonin in particular - of personality dimensions that predispose individuals to affective and substance use disorders. This symposium will present highlights from both this research program and from a large SSRI treatment study, and preliminary analyses of social cognitive measures from both will be included as well.

The Cimbi studies have used many of the same measures across various clinical groups and their matched controls, including structural MRI-imaging, PET-studies of the serotonin transporter and a receptor (e.g., the 5-HT2a or 5-HT4 receptor), neuropsychological tests, personality inventories, and social cognitive measures. The control groups have been combined for analyses of serotonin in the normal brain and its relation to personality, cognition and social cognition.

The SSRI trial concerned healthy first-degree relatives of patients with depression. It was conducted as a triple-blinded controlled trial with a total of 80 participants randomised to either escitalopram or placebo for four weeks. The main outcome was the cortisol response in a combined dexamethasone cortocotropine releasing hormone test.

Neuropsychological and social cognitive tests as well as personality measures were also applied before and after treatment. This study is unique in being both the largest study to date of normal subjects treated for an extended period with SSRI and in concerning normal subjects at risk of developing depressive disorders.

The social cognitive measures include emotional face recognition, moral reasoning, understanding of social situations, and a test of emotional intelligence (MSCEIT, which is also the topic of a separate symposium). We study serotonergic contributions to such processes both in correlations and in fMRI-measurements of the effects of drug challenges on emotional face recognition and decision making.

Iowa Gambling Task is a measure of decision making under ambiguity. This test first became known because it proved to be sensitive to ventromedial prefrontal lesions and formed part of the basis of the “somatic marker” hypothesis of decision making. It has since been shown that it is sensitive to impulsivity in many other clinical conditions with symptoms indicative of poor decision making in personal and social situations. Such decisions may be made, it has been argued, in a balance between an impulsive reward-based dopaminergic system and a reflective serotonergic system. We will address this question in the final presentation of the symposium.

Authors:
Gade, Anders; Senior lecturer, Copenhagen: Introduction to "serotonin and the social brain".

Knudsen, Gitte Moos; Copenhagen: Neuroimaging studies of serotonergic transmitter system in the normal human brain and in neuropsychiatric disorders.

Knorr, Ulla; Copenhagen: SSRI-treatment of normal subjects at risk of depressive disorder: Clinical experiences and effects on HPA-reactivity, cognition and personality measures.

Zornhagen, Gry; Copenhagen: Social cognition in adults – measures and preliminary serotonergic correlationsHartwig Siebner, Copenhagen: Mapping the contribution of 5-HT2a neurotransmission to risk avoidance and emotional processing.

Øfsti, Linn; Norway & Copenhagen: Decision making and the Iowa gambling Task – are there effects of serotonergic downregulation (MDMA-abuse) or SSRI-treatment.

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S - 4

NEUROPSYCHOLOGICAL ASPECTS OF PAIN

Laura Petrini (organizer)

The human pain experience is a multidimensional experience manifesting sensory-discriminative, cognitive-evaluative, and affective-motivational components, resulting in the pain system being one of the most complex of the human perception systems. This symposium addresses the topic of how these components are integrated by the pain system. The speakers will discuss experimental studies conducted at the Center for Sensory-Motor Interaction, Aalborg University. These studies are mainly based on three phenomena: (a) graphesthesia; (b) mirror and (c) thermal grill illusions. The findings can be of a help in developing new effective treatments plans for pain patients.

Authors:
Mørch, Carsten Dahl; PhD, Aalborg: The phenomenon of graphesthesia in the nociceptive system.

Christoffersen, Giselle; cand.psych. Aalborg: Psychological factors involved in the mirror box illusion.

Petrini; Laura; PhD, Aalborg: The role of sensory and perceptual Integration in the thermal grill illusion.

S - 5

SOCIAL COGNITION IN SCHIZOPHRENIA

Anja Vaskinn (organizer)

Individuals with schizophrenia are characterized by deficits in social cognition when compared to healthy control persons. Social cognition is an umbrella term covering domains such as emotion perception, theory of mind, attributional bias, and social perception. Social cognition has been shown to be related to everyday life functioning in schizophrenia. Because social cognition is central to the disorder and impacts on functioning, several new treatment programs targeting social cognition have been developed during the last years.

This symposium will review the literature of the mediating role of social cognition on the relationship between neurocognition and functioning in schizophrenia. Three different social cognitive treatment programs will be described. Training in Affect Recognition (TAR) was the first to be developed. Its method and rationale will be presented along with data showing that social cognitive deficits are remediable through the use of TAR. Cognitive behavioural therapy (CBT) in schizophrenia has traditionally focused on reducing the emotional component of symptoms through psychoeducation and modification of dysfunctional beliefs.

The symposium will demonstrate how social cognitive deficits can be integrated when doing case conceptualizations and cognitive reframing as part of CBT. Social Cognition and Interaction Training (SCIT) is a treatment program that was developed to improve both social cognition and social functioning among persons with schizophrenia. The training program will be described and the outline of a new study presented.

Authors:
Vaskinn, Anja; Oslo (organizer): Neurocognition, social cognition and functioning in schizophreni : A mediation model

Frommann, Nicole; Düsseldorf: Training of affect recognition: An approach to remediate social cognitive dysfunction in schizophrenia

Bliksted, Vibeke Fuglsang; Aarhus: OPUS, Clinic for young people with scizophrenia. Social Cognitive Deficits in First-Episode Schizophrenia: Implications for CBT

Schaub, Daniela; PhD student, psychologist, Bochum: Social cognition and interacting training(SCIT) for patients with schizophrenia.

S - 6

THE NEURAL BASES OF VALUE-BASED DECISION MAKING IN SOCIAL CONTEXTS

Thomas Z. Ramsøy (organizer)

The study of value-based decision making is a scientific program in exponential development, a research area also known as “decision neuroscience” or even “neuroeconomics” The realisation that emotions affect behaviour, and that human decision making is fundamentally not rational, or even necessarily conscious, has led to a surge in our understanding of a range of behaviours. Financial decisions, problem solving, social behaviours and political opinion formation have all been shown to be based on these components. Furthermore, from the scarce understanding of frontal lobe functions only a couple of decades ago, the science of the frontal lobes and their relationship to emotional regions involved in aversive and reward related responses, is producing an increasing amount of outputs. Nevertheless, there are still few synthetic approaches.

Ranging from basic response selection to socio-economic and political decision making, this seminar will focus on decision making in both healthy and aberrational states. By doing so, this seminar will present an updated view of emotional processes and their role decision making.

This symposium will first begin with a brief introduction, by Thomas Z. Ramsøy, about the regions thought to be involved in value-based decision making.

Following this, the next talk by Martin Skov will focus on how our experience of beauty is modulated not only by cognitive but also social factors, and how this can be used to study the interlink between social and hedonic processes in the brain. Following this, Hartwig Siebner will present the latest research on how conflicting response tendencies engage particular regions of the brain, and how such conflicts are resolved. In much a similar vein, Sofie Gelskov will present the latest results and insights from a neuroimaging study of pathological gambling, and how positive and negative emotional responses can be influenced, and drive economic decision making. Finally, Susanne Henningsson will talk about the latest research on how social information can influence behaviour and neural responses.

Authors:

Ramsøy, Thomas Z., Decision Neuroscience Research Group, Copenhagen Business School & Danish Research Centre for MR, Hvidovre Hospital, Denmark

Skov, Martin, Decision Neuroscience Research Group, Copenhagen Business School & Danish Research Centre for MR, Hvidovre Hospital, Denmark

Siebner, Hartwig, Danish Research Centre for MR, Hvidovre Hospital, Denmark

Gelskov, Sofie, Decision Neuroscience Research Group, Copenhagen Business School & Danish Research Centre for MR, Hvidovre Hospital, Denmark

Henningsson, Susanne, Decision Neuroscience Research Group, Copenhagen Business School & Danish Research Centre for MR, Hvidovre Hospital, Denmark

S - 7

THE EVER-LASTING PROCESS OF SELF-REGULATION THROUGHOUT THE LIFE SPAN: THE ALLIANCE BETWEEN AFFECTIVE NEUROSCIENCES, NEUROPSYCHOLOGICAL REHABILITATION AND NEUROPSYCHIATRY

Jukka Loukkola (organizer)

The symposium will start with a description of brain development and the neural networks that are crucial for the optimal maturation and the process for self-regulation. Implications to the development of cognitive, emotional and social skills will be outlined.

Neuropsychiatric disorders include a wide variety of syndromes that have a brain-derived background. The symptoms, causing difficulties in reciprocal and interactive communication, are based on the un-equilibrium of self-regulation as well as in motivational, cognitive and emotional balancing. A case example of a neuropsychotherapeutic rehabilitation process with a teenager with Asperger syndrome character will be described.

Motivational regulation includes cognitive and emotional knowledge about the state of mind and body functions. The information processing between different integration areas in the brain is mediated via five frontal-subcortical circuits. The specific areas of the frontal cortex are connected to certain lower brain structures, which are inevitable in motivational and behaviour regulation. The system also integrates the somatic and autonomous reflexes, the physiological machinery, into the regulation network.

The same brain structures are involved in both physiological, cognitive and emotional regulation. The motivational network in the brain underlies human emotion. A case example of a neuropsychotherapeutic rehabilitation process with an adult, who got TBI, will be described.

In order to have realistic tools and goals for the neuropsychotherapeutic intervention, a wide and well-structured neuropsychological investigation is needed. Understanding the underlying theories and concepts in neurosciences and functional integrity of brain-behavior systems and self-regulation helps the clinician to plan the assessment methods. The investigation itself should be seen as a therapeutic and emotionally meaningful process for the client. The wiring and tuning of the motivational machinery is the first priority for reciprocal and emotionally curing therapeutic co-operation. Neuropsychotherapeutic investigation is illustrated by a few clinical syndromes.

Authors:
Sajaniemi, Nina: Brain development and the neural networks for self-regulation: Implications to the development of cognitive, emotional and social skills.

Paavola, Liisa: The neuropsychotherapeutic process with a teenager with Asperger Symdrome characters: Diagnostic and rehabilitational perspectives.

Loukkola, Jukka: Motivational regulation and its effect on mental processing in neuropsychiatric disorders : A case example of an adult client with TBI.

Ylikoski, Raija: Neuropsychological assessment as a tool for understanding the neural networks and planningneuropsychotherapy.

Laaksonen, Ritva (Discussant)

S - 8

INTERACTING MINDS: CLINICAL PERSPECTIVES

Andreas Roepstorff, Chris Frith & Uta Frith (organizers)

It is increasingly clear that many clinical conditions are characterized also by impairments or alterations in social cognition, and that working through social cognition may be part of a possible therapeutic intervention. The interacting minds project at Aarhus University examines links between the human capacity for minds to interact and the putative biological substrate, which enables this to happen. In this mini symposium, we present four studies where this perspective may throw new light on a clinical condition.

Andreas Roepstorff, Department of Social Anthropology and, Centre for Functionally Integrative Neuroscience (CFIN)

Patients with schizophrenia have comprehensive deficits in social cognition compared to healthy people, to a larger extent than most patients with other mental disorders. There is growing evidence that aspects of social cognition, primarily social perception, may serve as a mediator between neurocognition and functional outcome in schizophrenia.
Preliminary results from a study of social cognitive deficits in patients with first-episode schizophrenia will be presented. A hypothesis regarding a possible model of different social cognitive “profiles” will be proposed. The results implicate that future therapeutic interventions should differentiate between different social cognitive “profiles”.

Social Cognitive Deficits in First-Episode schizophrenia
Vibeke Fuglsang Bliksted, clinical psychologist, Psychiatric Hospital, Aarhus and PhD. fellow, Centre of Functionally Integrative Neuroscience (CFIN)

After two decades of research on pragmatic impairment following right hemisphere damage (RHD), we are left with more questions than answers. There is general agreement that social cognition is important for pragmatic function, and that damage to right hemisphere areas can result in impairment of both social cognition and pragmatic function, but there is as yet no consensus about how or why. In this talk I approach the problem of pragmatic impairment in RHD from an emergentist perspective. I suggest that viewing pragmatic function as an emergent phenomenon opens up possibilities for new approaches to the problem of pragmatic impairment in RHD, and provides a useful framework for incorporating social cognition into our understanding of pragmatic impairment.

What's left to learn about right hemisphere damage, pragmatic impairment, and social cognition?
Ethan Weed, Ph.D. fellow, Department of Anthropology, Archaeology and Linguistics, AU and CFIN

It is commonly known that religious patients often turn to religion as a source for coping when dealing with illness or other negative life events. But it has never been clinically tested how religious coping strategies such as personal prayer modulate pain intensity and pain unpleasantness or how the subjective assessment of this activity correlates with autonomic functions in healthy subjects. With the aim of answering these questions we conducted a clinical effect study.

Empirical Investigations of Pain Modulation from Religious Practices
Ph.D. fellow, Else-Marie E. Jegindø, Dept. for the Study of Religion, Center of Functionally Integrative Neuroscience and The Danish Pain Research Center, Aarhus University/Aarhus University Hopsital, Denmark.

The Capgras Delusion is a disorder in which a loved one is believed to be replaced by an identical looking impostor. It is prevalent in 13.3% of patients with Alzheimer's disease (AD). Capgras sheds light on the nature of human attachment, and can be dissociated from another facial recognition disorder, prosopagnosia. Together these disorders suggest dual routes to facial recognition, with one route for visual recognition and a second route for emotional recognition. We present fMRI evidence from a patient with Capgras, alongside data from controls (with and without AD). We propose that these and other findings suggest a functional asymmetry between left and right FFA.

Capgras Delusion explained by functional asymmetry of Fusiform Face Area
Tony Jack, Brain, Mind and Consciousness Lab, Case Western University, Cleveland, Ohio

S - 9A

ASSESSMENT AND ASPECTS OF PSYCHOPATHY

Tine Wøbbe (organizer)

The focus of the two presenters will be upon psychopathy as a general construct and the association between psychopathy and violence from a mentalization-based perspective.

Tine Wøbbe: Psychopathy remains to be one of the most discussed and debated “constructs” in psychiatry. It is not a (formal) diagnosis, it cannot (easily) be treated, the psychopaths himself is most often not suffering from his “condition” – but his surroundings are as psychopathy is closely linked to violence, and the forensic system often deals with both psychopaths and their victims. Psychopathy is generally assessed in adults, but over the past few decades an increasing awareness among clinicians and researches has yielded attention to psychopathy in adolescents.

Mickey Kongerslev: Converging evidence exists to suggest a robust association between psychopathy and violence. Still, however, little is known about the underlying bio-psycho-social mechanisms mediating this association. In this presentation, a review of studies demonstrating such links will be presented. Then the findings will be discussed from a mentalization-based perspective. Mentalization, defined as the processes by which human beings understand themselves and others as psychological agents and beings, is a multidimensional social-cognitive-affective construct.

It will be argued, that partial dysfunctions in mentalizing might be some the core psychological mechanisms underlying psychopathy, and mediating/explaining its links with violence and other antisocial tendencies.

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S - 9B

EMOTIONAL INTELLIGENCE: FOCUS ON THE MSCEIT

Anders Gade (organizer)

"It is not just IQ, but emotional intelligence that matters". This quotation is from the popular science bestseller Emotional Intelligence (Goleman, 1995) which made the term emotional intelligence familiar to almost everyone, yet left many psychologists sceptical of the concept both in terms of its validity as an independent construct and whether it could be measured. In spite of the scepticism, efforts to measure and apply emotional intelligence have flourished in the last 15 years. Some emotional intelligence tests rely on self reports, and others are performance based.

The aim of this symposium is to present and discuss what may be the most serious – in both theoretical underpinnings and empirical research – performance or ability measure of emotional intelligence: the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT). This test consists of eight subtests in four "branches" (i) Perceiving Emotions, which are two versions of the familiar emotional recognition tasks; (ii) Using Emotions, which examines a person's ability to use emotions to facilitate cognitive processes; (iii) Understanding Emotions, which purports to measure the ability to understand the relationships between different emotions and how they may progress, change, and combine, as well as how emotions may arise from and facilitate social situations; (iv) Managing Emotions, which concerns the control of both one's own emotions and those of others so that they can be used effectively.

We will describe the MSCEIT and its structure and psychometric properties based on both published data and our own data from two studies of normal subjects, including the standardization sample (N: 1000) in Denmark. We will - based on a large sample of normal subjects also tested with traditional neuropsychological measures and personality inventories – discuss whether the MSCEIT is indeed a unique and distinct measure of emotional intelligence, or whether its correlations to IQ, executive and other cognitive measures, or personality are so high as to threaten this purported uniqueness.

Studies of the neurobiology of single elements of emotional intelligence are at hand (cf. this meeting on "the social brain"!), but studies on the neural bases of individual differences in emotional intelligence as measured by the MSCEIT or other emotional intelligence tests are scarce. So are intervention studies. One speculation is that emotional intelligence may in part be mediated by serotonergic systems. We have data to address such question, and we will present the analyses if they are ready by August.

Authors:

Gade, Anders; Senior lecturer, Copenhagen: Introduction to the concept of emotional intelligence: Is it valid, and can it be measured?

Hartman, Peter; Copenhagen: Psychometric properties of the MSCEIT – Danish standardization.

Meldal, Eva; Copenhagen: Emotional intelligence (MSCEIT) : Effects of gender, age, IQ and cognitive abilities.

S - 10

FAMILY MATTERS: INCLUDING THE FAMILY IN BRAIN INJURY REHABILITATION

Rikke Kieffer-Kristensen (organizer)

Acquired Brain Injury (ABI) is a chronic condition that is associated with changes in the patients physical, cognitive and behavioural functioning and may have serious consequences on patients' quality of life. Family stress following brain injury has in the recent years been well-documented and the impact of brain injury on the family is often immense. However many questions still remain open.

The aim of the symposium "Family Matters: Including the family in brain injury rehabilitation" is to give a short overview of the status of research and interventions within the various phases of brain injury rehabilitation. We address the question how acquired brain injury affect different family members in both the sub acute and post acute phase and whether it is possible to forge a link between family therapy and neurorehabilitation. Caetano address the theoretical and methodological considerations with the field of brain injury rehabilitation and the family. Norup et al. found that relatives to adult patients with ABI had significantly psychological problems and distress within the first month of injury, and address how neuropsychologists can work with relatives of patients with severe brain injury. Kieffer-Kristensen et al. presents evidence that parental ABI puts school-aged children in significant risk of developing severe stress response symptoms.

Finally From et al. recognise the need for family support that exceeds the traditional definition of relatives and presents the experiences of including not only parents and siblings, but also grandparents, friends, and others in the treatment of paediatric brain injury.

Carla Caetano, Copenhagen: Theoretical and methodological considerations: Key findings – key challenges.

Current research within the field of brain injury rehabilitation and the family will be considered, highlighting key findings and areas lacking in research. Methodological challenges in conduction research within this field will be discussed and future directions discussed.

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Lars Siert & A. Norup, Copenhagen: Neuropsychological support to relatives of patients with severe brain injury in the sub-acute phase.

We address how neuropsychologists can work with relatives of patients with severe brain injury. At our unit, we consider the work with the relatives as an important and parallel process in the treatment and rehabilitation of the patient. Thus, all relatives are offered individual neuropsychological support from day one of hospitalization until discharge from the unit and they also have the opportunity to participate in a support group led by a neuropsychologist.

Based on our clinical experiences demonstrating why working with the relatives is an important part of the rehabilitation, we conducted a study

investigating the emotional distress and quality of life in a sample of relatives of patients with severe brain injury. All relatives completed the depression and anxiety scales from SCL-90-R (Symptom Checklist) and the quality of life scales of the SF-36.
We found that the participants had significantly lower scores on all quality of life scales ($p<0.01$) and significantly more symptoms of anxiety ($p<0.01$) and depression ($p<0.01$) than normal reference populations.
Correlations were found between the patients' condition and the level of anxiety and depression in relatives.
Future research should focus on developing and evaluating interventions in the acute phase.

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Rikke Kieffer-Kristensen, Copenhagen: "The forgotten children" - Stress responses and emotional functioning in children of parents with acquired brain injury
Introduction/Objectives: The effect of parental brain injury on children has been relatively little investigated. This study examines stress symptoms and psychological functioning in children with a parent with an acquired brain injury.

Participants, Materials/Methods: The participants were 35 patients with acquired brain injury, their spouses and children aged 7-14 years recruited from out-patients Brain Injury Rehabilitation Units across Denmark. Children self-reported psychological functioning and stress responses. Emotional and behavioural problems among the children were also identified by the parents using the Achenbach's Child Behaviour Checklist (CBCL). A matched control group consisted of 20 children of parents suffering from another chronic illness, here diabetes, and were recruited from the National Danish Diabetes Register.

Results: The children in the brain injury group scores significantly higher ($p<0.01$) on all stress scales compared to the diabetes group. The parents in the brain injury group reported significantly more psychological problems in their children when compared to published norms (CBCL).

Conclusions: When parents have acquired brain injury, their children are at a substantial risk for developing psychological and stress-related symptoms. These results indicate the need for a family-centered approach in the care for parents with brain injury with special attention to emotional well-being of their children.

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Käte From, Copenhagen: Family counselling in paediatric brain injury rehabilitation
Children's Rehabilitation Center is a specialised neurorehabilitation clinic in the post acute phase, focusing on children and adolescents with brain injury, acquired between the age of 1 and 18. The Center has a neuropsychologically based multidisciplinary approach. The programme offers intensive specialised rehabilitation at the Center

as well as rehabilitation based in local settings depending on the specific needs of the child. The purpose of the rehabilitation is to enable the best possible return to daily living and to maximise the child's independence and the family's quality of life. Whilst it is the child in the family who has sustained the brain injury as a result of trauma or other acute clinical incident, it is the whole family that feels and lives with its effects. This is why Children's Rehabilitation Center finds it important for all members of the family as well as for the closest friends of both children and parents, to understand the nature of the brain injury. In practise this means family support that exceeds the traditional definition of relatives. In relation to this we offer individual as well as group counselling services not only to parents and siblings, but to grandparents, friends, and others as well. In addition to this all parents and siblings are invited to participate in the child's rehabilitation programme at least one day during their child's or sibling's stay at the Rehabilitation Center.

The counselling addresses a wide variety of cognitive and emotional issues that often present barriers to recovery and community reintegration and to optimal family functioning. The aims of these services are to prevent isolation for any involved person and to present a better understanding of the nature of the brain injury. This type of support tends to lead to a better adjustment and to more realistic personal expectations for all involved parties.

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10TH NORDIC MEETING IN NEUROPSYCHOLOGY

THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

ORAL PAPER SESSION - 1

CHILDHOOD: DEVELOPMENT AND DYSFUNCTION

Christian A. Stewart Ferrer: Living in a Neurotypical World : On the possible Use of Autobiographical material in Finding Ways to Increase Coping.

Ritta Hannonnen: Learning Deficits in Children with Early Onset Type 1 Diabetes.

Merete Wolf: How can Dichotic Listening Test SSW contribute to Assessment of Neuropsychological Disorders that damages the Social Function?

Jens Egeland: Confirmatory Factor Analysis of BRIEF: Support for a Distinction between Emotional and Behavioural Regulation.

Kathrine Skak Madsen: Motor System Microstructure associated with Choice Reaction Time in Children.

O - 1.1

LIVING IN A NEUROTYPICAL WORLD: ON THE POSSIBLE USE OF AUTISTIC AUTOBIOGRAPHICAL MATERIAL IN FINDING WAYS TO INCREASE COPING

Regardless of the given perspective on autistic dysfunctionality, attempts at alleviating dysfunctional symptoms involve the teaching of different skills that are supposed to be if not innate, then certainly easily and automatically acquired by neurotypical (i.e., non-autistic) children. This is done in numerous ways, from Carol Grays Social Stories (Gray et al., 2002) and Comic-Strip Conversations (Gray, 1994) to specific instructions such as, “greet your peers at least once each day” (Grandin and Barron, 2005).
In general, these different ways of promoting functionality are based on the assumption that many neurotypical functions can be acquired as conscious strategies and employed with reasonable adequacy by people on the autistic spectrum.
Thus, the next logical step consists in expanding the arsenal of available, teachable strategies and skills. This, however, requires that such approaches be uncovered and made implementable. So far, this happens mainly in the guise of techniques emerging from clinical practice - which requires the presence of an acting, imaginative clinician.
Still, if one reflects on e.g. Temple Grandin’s history, it becomes obvious that further techniques and approaches exist, hidden in the myriads of biographical incidents in autistic lives - noticed by no one except people with High-Functioning Autism (HFA) or Asperger’s Syndrome (AS).

The purpose of this paper is to provide phenomenological data from autistic autobiographies, thus arriving at more ways of teaching neurotypical functionality to people on the autistic spectrum, thereby increasing their ability to exist in the neurotypical world as self-providing individuals. As one young man with AS states: “I believe that it would be productive to teach some of the most well-functioning individuals with ASD psychology and human knowledge, while at the same time engaging in field practice in those subjects” (Elsvor, 1996 – my translation).
The sources are autobiographical writings by people with HFA/AS, and the resulting strategies are discussed in terms of educational applicability as well as being considered in regard to the advantages and disadvantages of using subjective, phenomenological material provided by a group of individuals whose very ability to provide the material illustrates their limited representativity in relation to the HFA/AS population in general, not to mention the entire population on the autistic spectrum.

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O - 1.2

LEARNING DEFICITS IN CHILDREN WITH EARLY ONSET TYPE 1 DIABETES

Early age of onset can affect cognitive development and learning in children with type 1 diabetes. Also episodes of severe hypoglycemia and poor metabolic control are probable risk factors of cognitive development. The effects of these risk factors are considered small to moderate, but their influence on learning in early school years has not been studied extensively. The aim of this study is to explore the amount and type of learning deficits in children with early onset diabetes and the association of learning deficits and severe hypoglycaemia and metabolic control.

Methods: 63 children with diabetes onset before the age of five years (diabetes group) and 93 children without diabetes (control group) were compared in the performance of reading, spelling and mathematics in the 3rd grade at school (at the age of 9 to 10 years). Reading speed and accuracy were measured with the tasks of text and non-word text reading, single non-word reading, reading rapid words and word list reading. Spelling accuracy was assessed with spelling words and non-words. Mathematics was assessed with the measures of verbal counting and arithmetic. Performance ≤ 10th percentile of the control group's performance was considered as a learning deficit. The group differences in the amount of learning deficits were analyzed with $\chi 2$ tests.

In the children with diabetes, 59.7% had a history of severe hypoglycaemia. The association of severe hypoglycaemia and learning deficits were studied with $\chi 2$ tests.

Metabolic control (mean blood glucose level during illness) in children with and without learning deficits was analyzed with t-tests.

Results: Children with early onset diabetes had more learning deficits than the children without diabetes in spelling ($\chi 2$ (1) = 14.67, $p < 0.001$) and in mathematics ($\chi 2$ (1) = 5.62, $p < 0.05$). In the diabetes group, 36.5% had a deficit in spelling and 23.8% had a deficit in mathematics. There were no differences in the amount of reading deficit. In the diabetes group, those with spelling deficit had poorer metabolic control that those with normal spelling skills ($t = -2.24$, $p < 0.05$). Severe hypoglycaemia was not associated with learning deficits.

Conclusion: Learning deficits are more common in children with early onset diabetes than in children without diabetes, especially in spelling and mathematics. The risk for learning deficits should be acknowledged in diabetes clinics and especially at schools. Good metabolic control seems to be beneficial to learning in children with diabetes.

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O - 1.3

HOW CAN THE DICHOTIC LISTENING TEST SSW CONTRIBUTE TO ASSESSMENT OF NEUROPSYCHOLOGICAL DISORDERS THAT DAMAGES THE SOCIAL FUNCTION?

Dichotic listening tests can describe auditory processing difficulties. Auditory processing difficulties have indirect influence on the social function. You can hear that something is said, but you can't grasp the meaning bearing details of the sounds. Some have difficulties with short term memory. They can tell a row of numbers, but if a row of meaning bearing words is longer than three words, the rest is lost. Those sorts of difficulties make contact very difficult.
But the dichotic listening test SSW developed by professor at Buffalo University Jack Katz can also describe difficulties with concentration and managing. You may understand well what is said, if there is no disturbing noise in the room, but a ventilator or talk from several persons at the same time means, that the meaning of what you try to hear disappears.
The talk in the symposium will deal with SSW test results in children diagnosed ADHD in American experiments and SSO results (the Danish version of SSW) in my work as psychologist in community of Aalborg's Pedagogical Psychological Advice.

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O - 1.4

CONFIRMATORY FACTOR ANALYSIS OF BRIEF: SUPPORT FOR A DISTINCTION BETWEEN EMOTIONAL AND BEHAVIOURAL REGULATION

The Behavior Rating Inventory of Executive Function (BRIEF), originally published in the US in 2000, has rapidly become the third most used inventory by Norwegian neuropsychologists, even though no formal validation study has yet been published. BRIEF is intended to measure distinct sub-processes of executive function in an ecologically valid way.

We present result from a validation study based on parent and teacher BRIEF-protocols from a mixed community and clinical sample of 158 ten-year old children. The main finding is that the scale has retained the psychometric properties of the original version.

The original children version was based on eight scales grouped into two index-scores measuring Behavior Regulation and Metacognition. Several later studies have shown that the Monitor scale was difficult to fit into the factor structure. On face value, it consisted of items measuring task-monitoring and self-monitoring. A Confirmatory Factor Analysis (CFA) based on such division of the Monitor scale by the Gioia group in 2002, found that a three factor structure was superior to the previous two-factor solution in the parent form. The new structure separated Behavior regulation from Emotional regulation.

The later published adult BRIEF version is based on this nine scale partition, but the present scoring program for the child version has not been changed, and the cited CFA of the child version has not been replicated nor tested in the teacher version.
The present study is the first to compare different factor models in the eight and nine scale division in both the Parent and Teacher Form.

Results: CFA showed best fit for a three factor model in both the parent and teacher form both when dividing the scale into eight and nine scales, but the latter division was superior to the former.

Discussion: Potentially, the division between Emotional and Behavior regulation can be taken as an operationalization of the Hot and Cold-executive functions-dichotomy i.e. impulsivity modulated by orbitofrontal and dorsolateral frontal structures respectively. The insufficient sensitivity of laboratory neuropsychological testing of executive functions to daily life behavior of subjects with ADHD, can potentially be due to the fact that these tests measure only Cold EF, while the BRIEF may give the clinician an instrument for measuring also Hot EF.

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O - 1.5

MOTOR SYSTEM MICROSTRUCTURE ASSOCIATED WITH CHOICE REACTION TIME IN CHILDREN

Diffusion-weighted imaging (DWI) studies in children and adolescents show that in white matter fractional anisotropy (FA) increases with age, possibly due to ongoing myelination and/or an increase in fibre density. Mean diffusivity (MD) decreases with age in both white matter and subcortical grey matter structures. Higher FA in the corticospinal tract correlates with faster reaction time (RT) in adults. RT improves during childhood and adolescence. Here we tested the hypotheses that children with faster 5-choice RT would show higher FA and lower MD in the corticospinal tracts and lower striatal MD.

Methods: Seventy-four typically-developing children (43 F, 65 right handers) aged 7-13 participated. Subjects performed a 5-choice RT task using the dominant hand. DWIs were acquired on a 3T MR-scanner. TBSS was used to project subjects FA and diffusivities onto a mean tract skeleton. A symmetric skeleton was used to extract mean FA and diffusivities from left and right corticospinal tract ROIs. Left and right striatal (putamen and caudate) ROIs were delineated on a symmetric average of high-dimensional warped T1-images and back projected into individual native T1-space and subsequently native DWI space to extract mean diffusivities. Mean FA and MD of each ROI were used in linear regression models predicting mean 5-choice RT, adjusted for age, gender and handedness.

Results: 5-choice RT was not significantly associated with corticospinal tract FA, neither contralateral (P=0.17) nor ipsilateral (P=0.09) to the dominant hand. However, faster 5-choice RT was significantly associated with lower MD in both contra- and ipsilateral corticospinal tracts ($p<0.03$), and with lower contra- and ipsilateral striatal MD ($p<0.003$). Moreover, 5-choice RT was positively associated with both parallel and perpendicular diffusivities in the contra- and ipsilateral corticospinal tract and striatum.

Conclusion: Individual differences in the time needed to initiate a pointing movement to one out of five targets were associated with individual variations in microstructure in the corticospinal tract and striatum. The observed relationship might be mediated by individual variations in the phase of maturation of the motor system. This is plausible since choice RT as well as corticospinal tract and striatum microstructure continue to develop during this age range. Further, dynamic processes, possibly associated with activity levels in the neural circuits, may also influence microstructure in the motor system. Alternatively, the associations could be mediated by more stable individual differences in corticospinal tract and striatal microstructure. Longitudinal observations are needed to distinguish between these, and other explanations.

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ORAL PAPER SESSION - 2

INTERVENTION STUDIES IN EXPERIMENTAL AND CLINICAL NEUROPSYCHIATRY

Chairman Jarl Risberg

Julian Macoveanu: Negative Outcomes and Risk Avoidance in Humans: Evidence for Involvement of 5-HT2A mediated Neurotransmission

Linn T. Fikke: The Effect of Acute Tryptophan Depletion on Impulsivity in Adolescents engaging in Non-Suicidal Self-Injury.

Marieke Pijnenborg: Reflex: A Social Cognitive Treatment to improve Insight in Schizophrenia.

Søren Hald: The Effect of active Music Therapy on interpersonel Skills in Persons with acquired Brain Injury.

Hanne Ridder: The Influence of singing on Social Engagement for Persons with severe Frontotemporal Dementia.

O - 2.1

NEGATIVE OUTCOMES AND RISK AVOIDANCE IN HUMANS: EVIDENCE FOR INVOLVEMENT OF 5-HT2A MEDIATED NEUROTRANSMISSION

When we make a choice between options that may result in either reward or punishment we take into account the sign (win or loss) and magnitude of potential outcomes of each choice. However, during risky decisions, people seem to be more sensitive to potential losses than gains of similar amounts. This tendency to avoid losses may be a critical component in our decision processes. The “reward circuit”, including the ventral tegmental area, ventral striatum (VS), medial prefrontal areas (MFC), is critical for risky decisions with dopaminergic neurotransmission playing a central role. However, recent studies have shown that dopaminergic signaling in the reward circuit is influenced by serotonergic (5-HT) neurotransmission. Here we used pharmacological functional magnetic resonance imaging (fMRI) to investigate the behavioural and neuronal role of 5-HT2A signaling in making risky decisions and evaluating their outcomes. In 20 healthy subjects (age range: 20 to 40), we examined the modulatory effects of acute selective 5-HT2A blockade on regional neural activity and connectivity during a gambling task. Participants took part in two fMRI sessions, one with no drug or after intravenous infusion of Ketanserin. The gambling task required participants to maximize their net gain by choosing between two options, a low risk option with low potential outcome and a high risk option with high potential outcome. The task parametrically modulated the probability of winning or losing (risk) and associated reward, while controlling for the expected value across the different choices. Data analysis focused on Ketanserin induced changes in neural processing of negative outcomes and on possible links between these activity changes and Ketanserin induced changes in risk avoidance. Analysis of the choice distributions across the risk levels revealed that participants became more loss avoidant after blocking the 5-HT2A receptor. The behavioural shift towards fewer high risk choices following Ketanserin administration correlated with activity in MFC. Ketanserin also decreased the response of posterior regions of VS during choice selection and anterior regions of VS when the subjects made a wrong decision and missed high wins. Psycho-physiological interaction (PPI) analysis showed that the increased tendency to make less risky choices after 5-HT2A receptor blockade was correlated with decreased coupling between both left and right VS regions and MFC. These results provide evidence for an involvement of 5-HT2A receptor in processing and avoiding negative outcomes.

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O - 2.2

THE EFFECT OF ACUTE TRYPTOPHAN DEPLETION ON IMPULSIVITY IN ADOLESCENTS ENGAGING IN NON-SUICIDAL SELF-INJURY

Objective: Non-suicidal self-injury (NSSI) is the deliberate, direct destruction or alteration of body tissue with no conscious suicidal intent. Sex differences in forms and numbers of NSSI behaviours engaged in exist. The majority of adolescents report little to no forethought before engaging in NSSI, suggesting a possible role of impaired impulse control in NSSI. Alterations in the serotonin (5-HT) system are implicated in the pathophysiology of impaired impulse control. Females have slower serotonin synthesis than males. The main objective of this study was to investigate the effect of an experimentally induced lowering of serotonin neurotransmission on impulsivity among adolescents having engaged in NSSI. Also, we investigated the interactive effect of sex.

Participants and Methods: Thirty-four girls (mean 15 years) and eight boys (mean 15 years) that had engaged in at least two different NSSI behaviours, participated in the study. They were randomized to sham depletion or acute tryptophan depletion (ATD), the method used to induce decreased serotonin neurotransmission. NSSI was measured by The Functional Assessment of Self-Mutilation (FASM) and the section on NSSI in Kiddie-Sads-Present and Lifetime Version (K-SADS-PL). Impulsivity was assessed by The Continuous Performance Test, Identical Pairs Version (CPT-IP).

Results: Two-way between-groups univariate analyses of variance (ANOVA) revealed a statistically significant interaction effect between intervention and sex in the prediction of an impulsive response style [$F(3,38)=4.69$, $p=.04$]. Further t-tests showed that compared with the sham depleted same-sex group, girls became more impulsive during ATD [$t(23.2)=2.13$, $p=.04$], whereas no such difference was found between boys in the sham depleted as compared to the same-sex tryptophan depleted group.

Conclusions: Adolescent girls engaging in NSSI became more impulsive in response to ATD. This suggests that serotonin can be one mechanism in the impaired impulse control that possibly characterizes at least some adolescents engaging in NSSI. No such effect was found among the boys, possibly due to the limited number of boys participating in the study.

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O - 2.3

REFLEX: A SOCIAL COGNITIVE TREATMENT TO IMPROVE INSIGHT IN SCHIZOPHRENIA

A majority of people with schizophrenia demonstrates impaired insight.
Treatment options to improve insight are few. Therefore, we propose a new intervention to improve insight in people with schizophrenia (REFLEX). The intervention is based on a social cognitive model of insight. Poor insight in schizophrenia has been associated with cognitive functioning, stigma sensitivity and, recently, social cognition (perspective taking in particular) in previous studies. We argue that self-reflection mediates these associations.

Impaired perspective taking ("what will other people think about my mental state?"), poor general cognitive abilities and stigma sensitivity are thought to hamper self-reflection. Poor self-reflection is in turn associated with poor insight, as self-reflection is necessary to incorporate mental illness in owns self-image.

REFLEX was developed to improve insight in schizophrenia. It focuses on insight in one's functioning in everyday life and changes in general functioning after psychosis. REFLEX consists of twelve group sessions.
During the entire training patients are stimulated to reflect upon their own thoughts, behavior and feelings. They are constantly encouraged to take the perspective of others during self-reflection.
The intervention consists of three modules of four sessions each: 1) coping with stigma 2) reflection on past experiences and changes due to mental health problems, and 3) reflection on ongoing thought, feelings and behavior. Experience sampling is used to stimulate perspective taking in daily life situations.

REFLEX is currently evaluated in a multicentre randomized controlled trial, it is compared to an active control condition consisting of group wise drill and practice cognitive remediation training. Hundred forty-six patients diagnosed with schizophrenia with poor insight and sensitive for stigma will be included in the study.

In the proposed presentation, the social cognitive model of insight and the outline of REFLEX will be discussed.

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O - 2.4

THE EFFECT OF ACTIVE MUSIC THERAPY ON INTERPERSONAL SKILLS IN PERSONS WITH ACQUIRED BRAIN INJURY

This presentation reveals first data from a music therapy research project on interpersonal communication competences of people with acquired brain injury (ABI).

Research question:
• Does music therapy have an effect on interpersonal communication competences in people with acquired brain injury?
o What is the effect of 20 music therapy sessions on interpersonal competences in musical improvisations?
o What is the effect of 20 music therapy sessions on interpersonal competences in daily life?

Outline of presentation:
1. Study introduction
2. Pre and post treatment assessment tools - Interpersonal Communication competences Scale (ICCS)
3. Interpersonal Communication Assessment in Music therapy

The rationale of using music in neurological rehabilitation is that musical interaction relay on many different areas of the brain working together. When music therapists and persons with ABI play music together, they are given an opportunity for simultaneous activation of the emotional-, motor-, cognitive- and communicative networks of the brain. Music therapy in neurological rehabilitation most often addresses functional needs such as; voice training, physical training on instruments, song writing, emotional relief, relaxation, and memory. When client and music therapist play together, they will continually adjust their interaction behavior. It is hypothesized that a secondary gain in playing music is improved interpersonal competences. This dependant variable is measured with Interpersonal Communication Competence Scale (ICCS). Client, staff and relatives will all evaluate the client's interpersonal competences using the ICCS pre and post 20 music therapy sessions. In order to measure interpersonal competences in musical improvisation ICCS is modified into a music interaction version (Hald 2009). In the second and last music therapy session the client does four interpersonal musical exercises; dialog, follow me, keep focus, and free improvisation. These exercises are designed to reveal information on interpersonal competences in musical improvisation. Video examples and first data from the study will be presented.

Authors:
Presenter: Søren Hald PhD student, Aalborg University, Denmark

Supervisors: Professor Dr. Tony Wigram and Associate professor PhD Hanne Mette Ochsner Ridder

O - 2.5

THE INFLUENCE OF SINGING ON SOCIAL ENGAGEMENT FOR PERSONS WITH SEVERE FRONTOTEMPORAL DEMENTIA

Panksepp (2010) describes how the pain of social loss opens the gateway to depression, and how the chronic sense of aloneness pervades many mental health illnesses and pathologies. In relation to this, psychological and behavioural symptoms of neurodegenerative diseases like dementia are reported to increase when psychosocial needs are not met (Kitwood 1997). Thus there is a growing need to address psychosocial needs, while at the same time psychosocial needs are increasing difficult to help as a result of frontotemporal dementia. In frontotemporal dementia the progressive loss of cognitive functioning (e.g. the lost ability to process language, to focus attention, to remember and to act in what is defined as a socially appropriate manner) makes it very challenging to engage in social interaction, especially in groups.

Music therapy is applied as a non-pharmacological treatment of psychological and behavioural symptoms of dementia. Based on evidence from clinical research (Ridder 2003; Ridder, Wigram & Ottesen 2009) the method of intervention utilises the musical and communicative aspects of therapeutic singing in order to focus attention, retrieve memory, regulate arousal and engage in social interaction at different phases of the music therapy session. Processing of the human voice is neurologically different from the processing of other acoustic signals. This has an impact on social engagement via hippocampal function, stress-related responses and self-calming behaviours.

This way of working with a person with dementia and difficulties in social engagement in clinical practice is illustrated with video examples from individual therapy in a Scandinavian health care model.

Presenter
Hanne Mette Ochsner Ridder, MA, PhD, associate professor at the music therapy training programme (BA, MA) and the doctoral school (PhD) at the University of Aalborg in Denmark. Her research focuses on music therapy with an elderly population and with people with dementia, specifically frontotemporal dementia. She is a certified clinical music therapy supervisor and president of the European music therapy Confederation, EMTC. She has published internationally in music therapy and has written and edited a number of books and articles in Danish language. Contact: hanne@hum.aau.dk

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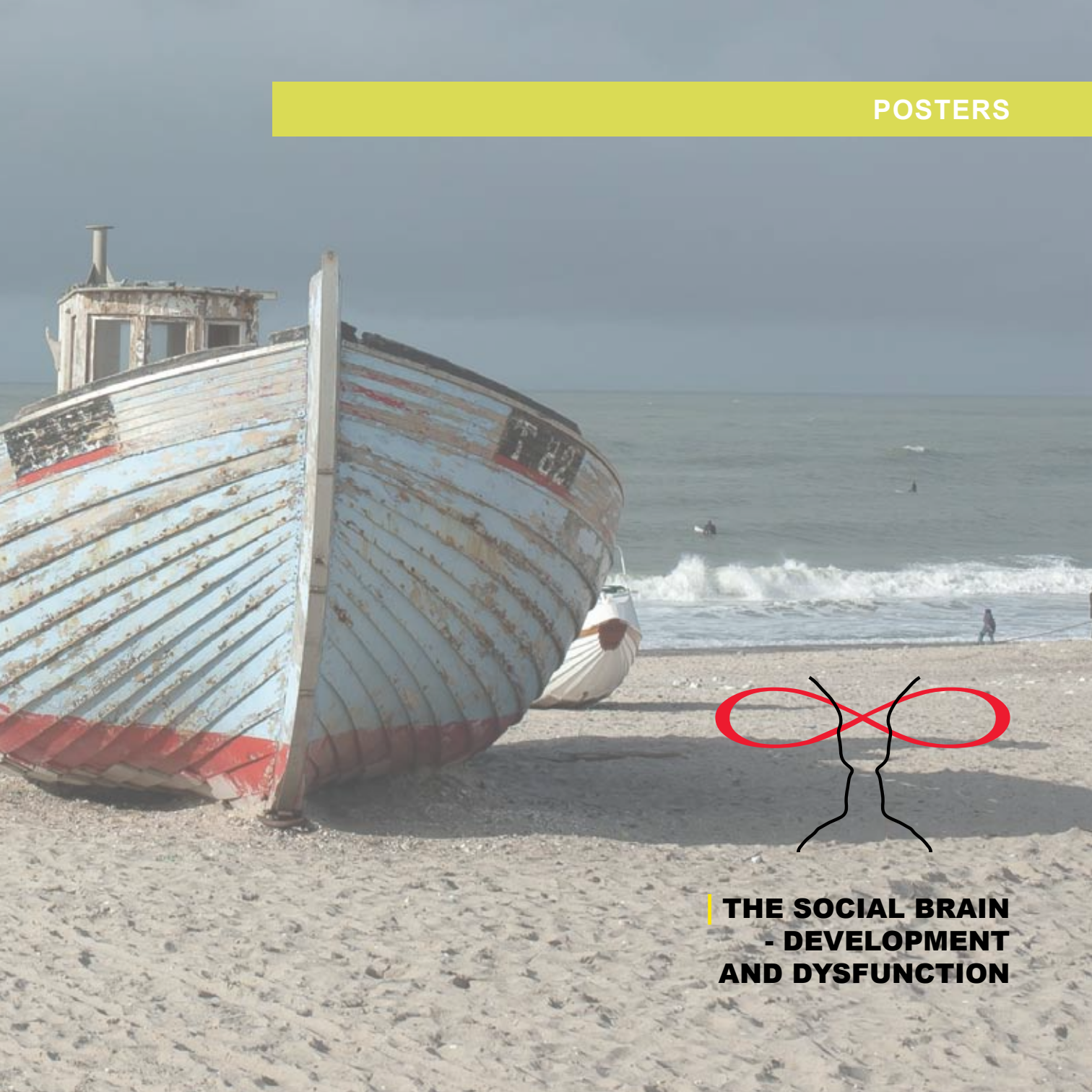
10TH NORDIC MEETING IN NEUROPSYCHOLOGY

POSTERS



THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

THEME: PSYCHOPATHOLOGY, ASSESSMENT AND INTERVENTION

P-1

POOR PREMORBID ADJUSTMENT AND DYSFUNCTIONAL EXECUTIVE ABILITIES PREDICT THEORY OF MIND DEFICITS IN STABILIZED SCHIZOPHRENIC OUTPATIENTS

Deficits in Theory of Mind (ToM) have been demonstrated in schizophrenia. The present study explored the relationship between ToM deficits, poor premorbid adjustment, and executive dysfunction in a sample of fifty-eight stabilized schizophrenic outpatients in contrast to a normative control group. Ordinal regression analysis revealed an association between deficits in both first- and second-order ToM tasks and poor social premorbid adjustment. In addition, deficits in first-order tasks showed an association with a low performance on the Trail Making Test B, while deficits in second-order tasks were related to male gender, a low performance on Block Design, and clozapine treatment. The R-square values amounted to 0.300 and 0.657, respectively. Years of illness evolution, the symptoms on the PANSS scale and Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) diagnostic subtype were not significantly associated with first- or second-order ToM tasks. Results of this study define a homogeneous phenotypic subgroup of schizophrenia patients, characterized by poor prognostic outcome factors, together with deficits in ToM and dysfunctional executive capacities with a visuo-perceptual component. These deficits could explain social functioning impairment in patients' daily routine.

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P-2

IS TREATMENT OUTCOME ASSOCIATED WITH COGNITIVE FUNCTIONS IN OBSESSIVE COMPULSIVE DISORDER?

Obsessive-compulsive disorder (OCD) is a complex psychiatric disorder characterized by involuntary and returning obsessions and compulsions. It is well documented that patients with OCD have mild cognitive dysfunctions, primarily in visuo-spatial memory and executive functions. First choice treatment for OCD is Cognitive Behavioural Therapy (CBT) and Selective Serotonin Reuptake Inhibitors (SSRI). Up to 50% of OCD patients do not have clinically significant treatment outcome when dropout rates are taken into account. A main object of this PhD project is to investigate whether cognitive functions are associated with treatment outcome. 40 adult patients with OCD will be assessed pre- and post standard treatment at an outpatient clinic for OCD at Aarhus University Hospital Risskov, Denmark, with neuropsychological tests and a semi-structured interview to rate severity of symptoms and treatment outcome. If cognitive functions in OCD patients are associated with poor treatment outcome, future treatments may need to take this aspect into account, either by compensating for or by focusing treatment directly at cognitive functions.

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P-3

MUSIC-MAKING WITH DEPRESSED PATIENTS: A CASE SERIES

Music is widely used to alleviate mood and a wide range of behavioural and imaging studies have shown the effects of music on mood of healthy individuals. However, evidence for the effectiveness of music in therapy of depression is scarce. In part, this is due to difficulties of standardising the process of the classical music therapy as it is usually tailored for the patient and also because it is often offered as part of a treatment package (in combination with medication, occupational and talking therapies) such that the specific effects of music are difficult to measure. To make a step in that direction we used a “music medicine” paradigm to investigate the effect of music-making and listening to music on the symptoms of depression, keeping the procedure constant and the role of the experimenter minimal. 5 adult non-musician patients (2 male, 3 female, age range 29 to 61) participated at up to 6 weekly music-making sessions in groups of 2-3 individuals, where they were a sked to play along with the cheerful music presented via a stereo system. The participants did not talk to each other during the session. Communication occurred solely through the music they played together, allowing them to profit from the non-verbal social aspects of music-making, that have been previously shown to activate neural systems involved in mediating reward and pleasure. Between the music making sessions they were asked to listen to the music used at the sessions once a day.

Hamilton Depression Rating Scale (HAMD) interview was conducted at the start and end of the intervention. Beck Depression Inventory (BDI) and Profile of Mood States (POMS) were used to monitor mood before and after each session. Pre-post session mood measurements with POMS showed consistent decrease of Anxiety, Depression, and Fatigue, and increase of Vigour, Elation and Arousal, which suggests a positive effect on this method on a short term basis and is in accordance with the results of a recently published study from our group using the same method with healthy individuals. However, even though according to the BDI scores, which had shown that 2 out of 5 patients had moved to a lower category of depression (mild to normal and severe to mild), and HAMD scores, that followed the same pattern, the number of patients is too small to say, if this method would have an effect on the symptoms of depression on a long term basis, which would need further investigation.

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P-4

COGNITIVE AND PSYCHOSOCIAL FUNCTIONING IN FIRST-EPISODE MANIA.

Objectives: Bipolar disorder is associated with a number of neurocognitive deficits in several domains such as verbal memory, attention and executive function. Studies on neurocognition focusing on first-episodes in bipolar disorder are scant, much due to difficulties defining a first episode or misdiagnosis. Psychosocial functioning in bipolar disorder has increasingly been given more interest during the last years, and social dysfunction has been linked to cognitive impairment and clinical symptoms in this patient group. The aim of this study is to examine neurocognitive- and social functioning early in the course of bipolar disorder.

Materials and methods: From the ongoing Thematic Organized Psychosis (TOP) study, persons with bipolar 1 disorder (n = 40) who had received treatment for a first manic episode no more than a year previous to inclusion and healthy volunteers (n = 465) were included. Cognitive functioning was examined with a comprehensive neuropsychological test battery. Psychosocial functioning were measured with a self-rating questionnaire, the Social Functioning Scale (SFS), consisting of seven sub scales (withdrawal, interpersonal behaviour, independence-performance, independence-competence, recreation, prosocial behaviour and employment) as well as a full scale score. Clinical symptoms were measured using Inventory of Depressive Symptoms-Clinician rated (IDS-C), Calgary Depression Scale for Schizphrenia (CDSS), Young Mania Rating Scale (YMRS) and Positive And Negative Syndrome Scale (PANSS).

Results: There were no significant differences regarding age, sex or education between the two groups. The clinical group scored below healthy controls on current and premorbid IQ, verbal and visual memory, psychomotor speed, attention and executive functioning. They also scored below the healthy control group on all seven subscales of the SFS. There were no correlations between neuropsychological measures and the SFS. Clinical symptoms were not correlated with social functioning except for a modest significant association between positive symptoms and the SFS.

Conclusion: Both neurocognitive deficits and reduced psychosocial functioning were present early in the course of bipolar disorder. In contrast to most previous research neurocognition did not correlate with psychosocial functioning or clinical symptoms except for positive symptoms. The results suggests a need to pay more attention to functional outcome in bipolar disorder, in line with schizophrenia research the last two decades.

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P-5

SEEING OURSELVES AS OTHERS SEE US: THE ROLE OF PERSPECTIVE TAKING IN INSIGHT IN SCHIZOPHRENIA

Background: Many people with schizophrenia (50-80%) demonstrate impaired insight, which has been associated with a poorer outcome of the disease. Impaired insight has been linked to both cognitive impairments and denial, due to sensitivity for the stigma of the diagnosis. However, a substantial amount of variance remains unexplained. We were interested in whether social cognition and subjective empathy would contribute to the prediction of insight in schizophrenia.

Methods: Forty-seven patients with schizophrenia were assessed by a test of social cognition (Faux Pas Test), a self-rating questionnaire for empathy and a short battery of tests of general cognitive abilities. Insight was a assessed with the PANSS, a semi-structured interview on symptoms of schizophrenia.

Results: We found social cognition (in particular: the ability to take the perspective of others) to make a significant and unique contribution to the prediction of insight in schizophrenia. Moreover, affective Theory of Mind (ToM) / empathy was a better predictors of insight than cognitive ToM.

Discussion: Our results show that being able to take the perspective of others contributes to insight. We hypothesize that the association between perspective and insight is mediated by self-reflection. Impaired perspective taking (“what will other people think about my mental state?”) is thought to hamper self-reflection. Self-reflection is thought to be necessary to incorporate mental illness in owns self-image. Our findings have implications for the psychological treatment of poor insight in schizophrenia, which will be discussed.

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P-6

PSYCHOLOGICAL TREATMENT OF PATIENTS WITH CHRONIC POSTTRAUMATIC HEADACHE

Posttraumatic headache (PTH) is one of the most frequent symptoms following mild to moderate head injury. Psychological factors are believed to play a role in the cause, maintenance and relief from chronic PTH.

This PhD project aims to analyze the following:

1) Investigate whether the cause and maintenance of the symptoms can be explained by a specific personality profile shared among PTH patients. The self-rating test NEO PI-R, based on the Five-Factor Model of personality traits, will be given to the treatment and control group as well as a healthy control group.

2) To develop a group intervention based on cognitive psycho-education, in order to provide the patients with knowledge and strategies to manage their PTH. A sample of 30 PTH patients will be included. They will follow a psycho educative program in groups of 8 patients, with 2 hours sessions during a 9 weeks period in a controlled design with 30 other PTH patients who will receive conventional pharmacological treatment.

3) To measure the long-term socioeconomic effect of the intervention and compare with the immediate results (9 weeks) and after a 6 months follow-up period.
Outcome measures consist of self-rating questionnaires to assess headache frequency and intensity, self-efficacy, quality of life, ability to work and associated posttraumatic stress symptoms.

The poster will include preliminary results.

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THEME: ADHD

P-7

RESULTS ON THE ATTENTION NETWORK TEST ARE INFLUENCED BY EMOTIONAL SYMPTOMS IN ADULTS WITH ADHD

Background: Patterns of psychometrically defined attention deficits have been difficult to identify in children and adults with attention-deficit/ hyperactivity disorder (ADHD). This is probably related to the heterogeneity that characterise the diagnostic group, as well as the complexity of the concept of attention. Several theoretical models have been put forward to explain this complexity. One influential model developed by Posner and collaborators describes three anatomically distinct, but interacting attention networks: the alerting, orienting and conflict network. The model was used as a framework to develop the Attention Network Test (ANT). One of the few ANT studies including adults with ADHD showed impairment only in subgroups of patients, confirming the cognitive heterogeneity reported in several studies of children. It has been suggested that information about behavioural and emotional symptoms should be taken into account in order to understand such findings.

Objective: To investigate associations between ANT results and behavioral-emotional symptoms.

Methods: The participants are part of a Norwegian study, including more than 600 adults with ADHD, and controls. ADHD (according to DSM-IV criteria) was diagnosed by clinical psychiatrists/ psychologists before inclusion. The ANT was part of a clinical evaluation of a subgroup of 115 adults (ADHD=59, controls=56, with 59.6% and 58.2% females, respectively (ns), and mean age 33.8 and

29.2 years, respectively, p = .003). All participants completed the Adult ADHD Self-Report Scale (ASRS) measuring current ADHD symptoms, the Wender Utah Rating Scale (WURS) measuring childhood ADHD related symptoms retrospectively, and the Mood Disorder Questionnaire (MDQ), asking for hypomanic/manic symptoms and behaviour.

Results: The ADHD group was not different from the control group on measures of the three attention networks, but participants with ADHD were more variable and made more omission errors than the controls. Correlation analyses within the ADHD group revealed significant correlations between ANT measures of the “conflict network” and the MDQ and WURS scales. Reaction-time and accuracy measures were significantly correlated with MDQ and the ASRS scale was significantly correlated with accuracy measures.

Conclusions: Adults with ADHD were characterised by impairment on measures of variability and inattention, confirming earlier findings in children. The correlations between emotional symptoms and ANT results in the ADHD group emphasize the importance of including such symptoms in further studies of cognitive function in adults with ADHD.

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P-8

THE EFFECTS OF A GROUP-BASED TREATMENT ON CHILD'S ATTENTION AND SOCIOEMOTIONAL BEHAVIOR

Background: A group-based treatment for children with problems in executive functions and attention has been developed to reinforce and strengthen executive functions, attention and self-control, to reinforce and practice social skills, and to strengthen positive self-image. The treatment program consists of 25-30 highly structured sessions once a week for a group of 4-5 children, and it includes also parent training and consultations with child´s school.

Objectives: The aim of this intervention study was to examine to what extent the problems in executive functions, attention and socioemotional behavior are related to child´s coping with everyday life and whether these problems decrease during one year of child´s neuropsychological group-based treatment (for children with problems in executive functions and attention) and concurrent parent groups. The relations between family factors and degree of child´s problems and treatment success were also studied.

Methods: The data was collected at the psychological clinic of the Department of Psychology at the University of Tampere, Finland. Assessments were made before and after the treatment. Parents of 39 children from the age of seven to eleven in remediation completed The Strengths and Difficulties Questionnaire (SDQ) and The Five to Fifteen parent questionnaire (FTF) to assess child's socioemotional behavior and attentional problems. The clinical profiles of SDQ were compared to those of an English norm sample consisting of 735 children and FTF of a Finnish norm sample consisting of 10298 children.

Results: The results indicated that in compared to the norm samples, the children in neuropsychological group-based treatment had significantly more problems in all of the domains of attention and socioemotional behavior in the SDQ (emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behavior) and FTF questionnaires (executive functions, social skills, emotional and behavioral problems). These problems interfered most with child´s school attendance and learning. During one year of neuropsychological group-based treatment child's problems in attention and socioemotional behavior were decreased and prosocial behavior increased. The family background factors (i.e. parents´ education, age, single parenthood) were correlated to degree of difficulties of child´s problems but not to treatment success.

Conclusions: The findings showed that the children with executive function and attentional problems benefit from the neuropsychological group-based treatment. Further studies are needed in order to ensue 1) do the positive effects evident after intervention program persist and 2) do the social skills trained during the intervention generalize to the real social situations with peers.

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THEME: ASSESSMENT AND TESTS

P-9

WORD LISTS AS INSTRUMENTS FOR NEUROPSYCHOLOGICAL RESEARCH: RASCH-MODELLING A LIST WITH EMOTIONAL CONTENT

When lists are used to measure individual differences, some words could be working differently for different subgroups. Differential Item Functioning (DIF) is said to occur when an item has a lower probability of being passed by one of the subgroups after controlling for the measured ability. From a psychometrical perspective, the DIF hypothesis should be tested before claiming group differences in some constructs because ill-functioning instruments are plausible alternative explanations in both experimental and assessment contexts. DIF analyses are easily carried out in the Rasch Model context.

It is a fact that females outperform males on tasks involving recall of words from a list. Neither factors related to the visual representation nor the phonemic processing of words seem to be responsible for this advantage. However some factors related to semantic processing, such as emotion content, could have some causal role because females do not score higher than males on pseudoword recall tasks and there is some evidence of superior female recall of emotional information in narrative contexts. When a word list has been constructed by manipulating a supposedly causal variable (e.g., emotional/non emotional content) and typical confounds have been controlled for (number of syllables and frequency of use), then DIF analyses can serve to explore the causal influence of the manipulated

variable on sex differences in verbal memory. This was the objective of this piece of research.

Participants were eighty-one (39 male, 42 female) undergraduate and graduate paid volunteers recruited at Simon Fraser University (BC, Canada). Fourteen two-syllable words (7 emotional, 7 non-emotional) were carefully selected in order to control for extraneous factors and then randomised into a list presented in 20 seconds. Rasch analyses were performed with the program Winsteps. After testing data-model fit, DIF analyses were conducted. Graphical representation will be primed in the presentation of results.

Results did not show any sex-related location difference in serial order effects. However, significant location differences (DIF) were found for some words, as expected. This is consistent with our hypothesis relating sex-related differences in word list recall with semantic factors and, more specifically, with emotional content. It must be noted that this is a small-size study by psychometric standards. A different procedure should be devised if person (instead of group) assessment were the research goal.

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P-10

AN ESTONIAN PICTURE NAMING TEST AS A FIRST STANDARDIZED NAMING MEASURE IN ESTONIA

Background: Naming ability is one of the key aspects of language that could become affected in various neurological conditions. Naming ability tends to be culturally biased as some objects or pictures that are common in one culture may not be familiar for subjects in another. Elderly people are most often affected by vascular disorders and dementia. The aim of this study was to standardize a Estonian Picture Naming Test (EPNT) for the assessment of naming ability of Estonian subjects.

Methods: Altogether 51 healthy elderly persons (27 F, 24 M), age 50 to 84, mean education 12.5 years participated in the study. All subjects were screened with the MiniMental State Examination (MMSE) and had no neurologic or psychiatric complications. EPNT includes pictures form the following categories: animals, birds, insects, plants, fruits, body parts, food items, buildings, parts of house, household items, tools, furniture, games and toys, music instruments, clothing items, transportation. There were altogether 100 pictures for naming and each category included 6-7 pictures. The pictures were selected accordingly that each category would include both more and less common items.

Results: In average 96.06 pictures were named correctly (SD 3.02; range 87 – 100). There were no age, education or sex effects detected. Naming ability was influenced by MMSE score. The errors in naming were mostly semantic (naming another item from the category). Younger subjects were better in naming food and clothing items. Men showed a tendency to be better in naming non-

living items and women showed a tendency to be better in naming living items.

Conclusions: This study provides a preliminary standard for the assessment of EPNT in Estonian subjects. According to our results the naming ability is mostly affected by general cognitive level and possible dementia. Further validation with clinical groups is needed to select the most relevant categories and pictures for differentiation.

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THEME: NEURORADIOLOGICAL STUDIES

P-11

DANCE FLOOR IN THE BRAIN

Listening to a musical rhythm often spontaneously triggers toe tapping or head nodding, synchronous with the beat. This is an automatic and often involuntary process which does not require attention in order to perform these movements in good synchronicity with the perceived beat. Therefore, there is an emerging discussion whether music might not only be culture but have also a biological origin. Striking evidence for this argument is that there is no known human culture which did not has produced music. In addition, it seems that there are fundamental rules in the processing of music that every human knows, without being explicitly taught, such as differential responses to consonant and dissonant intervals, that already six month old infants can do.

Neuroimaging studies have repeatedly shown that music processing, i.e. the processing of pitch and rhythm are reliably activating a neuronal network, which only partly overlaps with general auditory processing. Furthermore, the basal ganglia have been shown to be key areas for processing of rhythm.

However, most neuroimaging studies have used more artificial than natural stimulations, such as rhythms, generated by simple tones, or presenting only short pieces of music. Therefore, this study aimed to detect brain responses to dance-floor-like music, by playing a 12 min music sequence, while the subjects were asked to relax, lie still, and listen to it.

In order to have the fMRI scanner noise not as a disturbing background noise, the scanning was performed with short silent gaps, mirroring the beat of the music. Thereby, the scanner acted as an addition rhythm instrument.

The data were analysed using a combined independent component analysis (ICA) and functional connective approach. The results demonstrated that listening to musical rhythm activates predominantly three cortical networks, with one comprising the motor areas, one comprising the auditory cortex, and one a fronto-parieto network. Interestingly, all three components overlapped in the left medial aspect of Heschl's gyrus. In addition the functional connective analysis showed a strong coupling of the left and right auditory cortex with the basal ganglia.

In conclusion, these results are reflecting that passive listening to musical rhythms already activates the entire motor network, including the basal ganglia, even in the absence of motor performance. In addition, the results confirmed that the right hemisphere is more involved in the processing of music than the left, as there were more extended and intense activations in the right auditory, frontal and parietal areas.

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P-12

EFFECTIVE CONNECTIVITY ANALYSIS DEMONSTRATES INVOLVEMENT OF PREMOTOR CORTEX DURING SPEECH PERCEPTION

Rauschecker and Scott suggested recently a bi-directional loop linking areas for speech perception and speech production. Delineating such dynamical and interactive processes in humans has proven to be difficult by conventional imaging analysis alone. In order to test such a functional loop in relation to speech perception in humans we tested different models involving Heschl's Gyrus (HG), Planum Temporale (PL), mid-STS and PMC applied to fMRI data using parametrically varied speech stimuli. The fMRI study included 16 healthy adults participants. A parametrically graded stimulus paradigm, where white noise was gradually changed through 7 steps into a speech sound (consonant-vowel syllable) was used, creating a continuous morphing sequence.
The stimuli were presented in a randomized event-related fMRI design. The fMRI results were modelled by applying dynamic causal modelling (DCM). The fMRI results revealed a graded increase in activation in the left STS area until the 5th manipulation step where it ceased to increase. PMC activity was only present at this the 5th manipulation step. Concurrent to these results, the sounds was rated significantly more often the sounds as speech sounds from the same manipulation step and onwards.

The Bayesian model selection favoured a model that demonstrated a linearly increasing connectivity between Heschl's gyrus and PT as well as between Heschel's gyrus and STS but a linearly decrease

between PT and PMC as the sounds became more and more speech. There was further an increased connectivity between PMC and STS exclusively at the 5th manipulation step. The significantly improved speech recognition coincided with the increase in PMC activity coincided and increased in connectivity between this area and the left STS. When it became more obvious to the participants that the stimulus was a speech sound the PMC activity as well as the increased connectivity diminished again. The highest level of motor activity was observed when participants listened to distorted speech and diminished as the sound became more easily identifiable as speech sounds. It is therefore concluded that PMC is not necessary for speech perception in general but may assist in interpreting a speech sound when phonological information is sparse.

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P-13

THE NEURAL BASIS OF LEFT-RIGHT DECISIONS

Left-right decisions (LRD) are important aspects of everyday life, e.g. in driving a car. In contrast to other spatial description, like up-down, is the error rate in left-right decisions disproportionally higher. However, the underlying behavioral and neuronal mechanisms are poorly understood. Previous studies that examined LRD were often confounded with mental rotation. Therefore, the present fMRI study investigated LRD while controlling for mental rotation, and thereby separating the neuronal correlates for these two tasks.

Sixteen healthy subjects were presented pictures of hands pointing either left- or rightward in a pseudo-randomized fMRI block-design. There were two types of blocks: In LRD blocks, subjects had to decide by button press if they saw a left or right hand, and in control blocks if they saw the inside or outside of the hand. Some of the hands needed to be mentally rotated to be identified as left or right hands. The LRD blocks contained a parametrical varied amount of rotated versus non-rotated trials. The data were collected with a 3T GE-Signa MRI scanner. Echo-planer imaging; TR 2.8 s.; 96×96 matrix. Preprocessing was carried out with SPM8. Realign and unwarp, normalization (2mm), and smoothing (FWHM 8mm). Statistics: One sample t-test, uncorrected 0.001, cluster size 20.

When the LRD condition was compared with the control condition, an activation pattern, comprising a fronto-parietal network was observed, which was more lateralized to the right. In addition, the parametrically varied degree of rotation in the LRD

blocks allowed to separate activation associated with mental rotation from LRD related activation. The non- rotation condition showed bilateral activation in the angular gyrus, calcarine sulcus, frontal superior medial lobe. The rotated condition resulted in bilateral activation in the occipital lobe (inferior and middle (L) and calcarine sulcus (R) lobe), in inferior and superior parietal areas. In addition activations were observed in the post- and precentral gyrus, and the inferior and superior frontal gyrus. In frontal areas the activation was stronger on the left side.

The findings reveal that LRD condition (non-rotated trials) was especially related to activation in the angular gyrus. The result thereby fits to the findings of previous lesion and imaging studies. In addition, activation near the calcarine sulcus was found which could relate to the occipital activation found in a previous study. The activation found in the rotation condition included areas previously reported for mental rotation.

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P-14

ACUTE BLOCKADE OF 5-HT2A RECEPTORS REDUCES ORBITOFRONTAL CORTEX RESPONSE TO ANGRY AND FEARFUL FACES

Introduction: The serotonergic transmitter system is involved in modulation of emotions, temperament and individual differences in the risk for developing mood disorders, such as major depression.
We performed pharmacological fMRI in healthy adults to assess the role of 5-HT2A receptors in frontolimbic circuits in emotional processing of faces with negative valence. We used an emotional faces paradigm with and without pharmacological blockade of 5-HT2A receptors by administration of ketanserin. We hypothesised that 5-HT2A receptor blockade leads to an impairment of emotional processing in the orbitofrontal cortex (OFC), since this region has a high 5-HT2A receptor density and is known to be involved in the evaluation of socially relevant stimuli.

Methods: Seventeen subjects (9 males, 8 females), aged 22-40 (32.46 ±2.82,), performed a gender discrimination paradigme. Faces were shown in blocks consisting of male and female faces with neutral, angry or fearful facial expressions, each intermixed pseudorandomly with null events, during two fMRI sessions at 3T, at least one week apart. In one session, 5-HT2A receptors were blocked with ketanserin over time during the scanning session. During the second session no drug was given (control session). The order of sessions was counterbalanced across subjects. Ketanserin was applied intravenously (10 mg bolus followed by 6 mg/h for approx. 75 min).

We had from previous PET scans obtained neocortical 5-HT2A binding potential (BPP) values for each subject. Statistical analyses were performed in SPM5 using a repeated measures ANOVA design including aversive vs. neutral contrasts from the two sessions. The individual contrasts of interest were entered in separate repeated measures ANOVA mo dels that included the average BPP, the ketanserin occupancy (KEToc), and the product of the two latter as covariates for each subject ($p<0.001$, uncorr.).

Results and conclusion: There were no differences in task performance between the control and the ketanserin session. The amygdala was activated when viewing aversive (fearful and angry) compared to neutral faces. The neuronal response in amygdala was not reduced by 5-HT2A receptor blockade. In contrast, 5-HT2A receptor blockade resulted in a bilateral reduction of the neuronal response to aversive faces in medial OFC. The interaction between the covariates BPP and KEToc showed a positive correlation with amygdala. This demonstrates the involvement of amygdala and orbitofrontal 5-HT2A receptor mediated neurotransmission in emotional processing. In conclusion, our results point to a crucial role of serotonergic neurotransmission in the orbitofrontal regions in emotional processing of human faces with negative valence.

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P-15

DIMINISHED CINGULUM BUNDLE ASYMMETRY IS ASSOCIATED WITH NEGATIVE EMOTIONALITY AND HPA-AXIS FUNCTIONING

Introduction: Structural and functional changes in the amygdala and anterior cingulate gyrus have been linked to anxiety and mood disorders, for which the trait neuroticism and increased hypothalamic-pituitary-adrenal (HPA) axis activity are known risk factors. Increased right and decreased left functional connectivity between amygdala and anterior cingulate / dorsomedial frontal cortex have been associated with higher trait neuroticism. The major fibre bundle connecting these structures is the cingulum. An altered balance between left and right anterior cingulate function has been hypothesized to contribute to the heightened negative affect and neuroendocrine arousal observed in depression. Presently, there are no studies relating the risk factors neuroticism and HPA-axis activity to specific fibre bundles in the brain. Here we studied the a priori hypotheses that neuroticism and HPA-axis activity would be associated with the extent of asymmetry in left and right cingulum fractional aniso tropy (FA – a measure thought to reflect axonal density, organisation and myelination).

Methods: Forty-nine healthy adults (15 females) aged 20-86 were included. Neuroticism was assessed using the 240-item self-report Revised NEO Personality Inventory. HPA-axis activity was assessed by the extent of cortisol rise after wakening, i.e. the cortisol awakening response (CAR). To estimate the CAR, each subject collected five serial salivary cortisol samples at home at wakening and every 15 minutes following. Diffusion-weighted images were acquired using a 3T MR-scanner. TBSS was used to project subjects' FA onto a mean tract skeleton after spatial normalisation. Mean FA values were extracted from the right and left cingulum bundle of all subjects. The percentage difference between left and right cingulum FA was calculated and used in multiple linear regression models.

Results: Linear regression models showed that diminished cingulum FA asymmetry, adjusted for age, age2 and gender, was significantly associated with higher CAR ($p=0.039$) as well as with higher neuroticism levels ($p=0.003$). In agreement with earlier findings, higher neuroticism levels were associated with increased CAR ($p=0.032$).

Conclusion: The balance between left and right cingulum FA seems important for negative affect and neuroendocrine arousal in healthy subjects. Animal studies suggest that the left medial prefrontal cortex (mPFC) may modulate, whereas the right mPFC may facilitate neuroendocrine response and negative affect. Speculatively, diminished cingulum FA asymmetry is a possible structural brain marker of a predisposed risk of developing anxiety and mood disorders. Further studies are necessary to elucidate this question more fully.

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P-16

VERBAL FLUENCY PERFORMANCE IS ASSOCIATED WITH WHITE MATTER MICROSTRUCTURE IN A LEFT HEMISPHERE NETWORK IN CHILDREN

During childhood and adolescence, different fiber tracts exhibit distinct developmental trajectories measurable with diffusion-weighted imaging (DWI). Fractional anisotropy (FA), a measure thought to reflect axonal organization, density and myelination, has consistently been shown to increase during this age range. Important questions remain about the link between changes in FA and developing cognitive functions. Verbal fluency (VF) is the efficiency of lexical retrieval processes. VF undergoes continuing improvement in children from 7-13 years of age and evidence from lesion and fMRI studies implicates a left lateralized network in VF skills.
We hypothesized that, even within children of similar age, VF skills would be associated with increased FA within a left hemisphere language processing network (LLN) consisting of the arcuate fasciculus/superior longitudinal fasciculus II (AF/SLFII) and the anterior limb of internal capsule (ALIC).

Methods: Sixty-seven children (28 males) aged 7.6-12.8 years participated. The measure of VF was the subjects' ability to generate as many animals as possible, then as many words beginning with the letter S as possible, in both cases for one minute. The subtask scores were standardized and summed for the VF measure. DWI was acquired using a 3T MR-scanner. The diffusion tensor was fitted using the RESTORE algorithm. Spatial normalization of DWI and ROI definition was

accomplished using the TBSS module in FSL. A left AF/SLFII and left ALIC ROI were drawn onto the mean TBSS skeleton and mean FA values were extracted from the ROIs for each participant. LLN FA was the mean FA from the 2 ROIs.

Results: As hypothesized, increased FA in LLN was associated with better VF performance (R2: 0.438, β: 0.207, p=0.05), adjusted for age. A planned follow-up analysis entering the two ROIs FA values as separate predictors in the same model revealed possible independent statistical effects on VF of FA of both the AF/SLFII (R2: 0.2, β: 0.306, p=0.012) and the ALIC (R2: 0.2, β: 0.24, p=0.047).

Discussion: The results support a significant association between increased FA within LLN and better VF performance in children that is not mediated entirely by chronological age. Children of similar age may vary in the phase of maturation in the LLN and this variability may mediate the associations with VF ability. Alternatively, the associations could be mediated by stable individual differences reflecting underlying white matter connectivity. Longitudinal observations may help to distinguish between these, and other, explanations.

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THEME: MODERATE COGNITIVE IMPAIRMENT AND DEMENTIA

P-17

PROGRESSION OF COGNITIVE DECLINE IN PATIENTS WITH MODERATE COGNITIVE IMPAIRMENT WITHOUT DEMENTIA

Introduction: Vascular cognitive impairment and vascular dementia are important causes of cognitive decline in the elderly. We reviewed vascular factors that might be responsible to cognitive decline in vascular dementia and vascular cognitive impairment.
Purpose: To study status of risk factors in vascular dementia in accordance with results of 3-years study.

Methods: 144 patients with vascular dementia (46 man and 82 female, aged from 55-79, average age 64,9±4,6 years) have been studied. Diagnosis as “Vacular Dementia” was determined in accordance with ICD-10 and NINDS—AIREN criteria. 145 patients with chronic cerebrovascular pathology and moderate cognitive impairment (91 female and 54 men, aged from 50-79, average age 63,8±3,1 years) were a control group. Clinical-neurological and MRI-investigation were performed for all patients.

Results: Comparative study of vascular risk factors in patients with vascular dementia and chronic cerebrovascular pathology and moderate cognitive impairment was performed. Arterial hypertension was significant risk factor for patients aged from 50-79.

A coronary heart disease and hyperlipidemia were significant risk factors for patients aged from 50-59; coronary heart disease, diabetes mellitus were significant risk factors for aged from 60-69,

hyperlipidemia was significant risk factor for aged from 70-79. In accordance with MRI-results a cerebral white-matter lesions in thalamic, basal ganglion and bilateral subcortical leukoaraiosis were significant risk factor for dementia. The control examination was performed for group patients with moderate cognitive impairment after 3-years. So, during 3-years in 32 patients (22,1%) with moderate cognitive impairment the MMSE summary point was less than 24 point, consequently, the mild dementia was diagnosed for these patients and a rterial hypertension, coronary heart disease, hyperlipidemia and diabetes mellitus were significant risk factors for these patients with dementia.

Conclusion: All determined vascular risk factors are potentially eliminated and resolved and performed of timely therapeutic actions for patients with vascular cognitive impairment will allow to avoid of vascular dementia development.

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P-18

PROJECT BRAIN TRAINING – A BETTER EVERYDAY LIFE WITH DEMENTIA

There is a growing interest as to how methods of non-pharmacological intervention can be applied in the area of dementia. One method is neuropsychological rehabilitation for dementia.

The present pilot project explored the possibilities of using a holistic neuropsychological rehabilitation as an intervention method for dementia. The purpose of the study was to develop and evaluate the method in this particular context.

A heterogeneous group of seven persons with Mild Cognitive Impairment (MCI) or dementia, Alzheimer's disease or Semantic Dementia, and their caregivers completed the study at the Dementia- and Memory Clinic at Glostrup Hospital, Denmark.

The intervention was individualised and focused on preserved abilities and personal resources to overcome and manage experienced symptoms and problems, development of insight and the potential for mastering and adaptation. The aim was to strengthen, stabilise and/or re-establish everyday functions. As a central part of the method both persons with MCI and dementia and their closest caregivers were included in the rehabilitation process. The purpose was to give the persons with MCI and dementia and their caregivers the opportunity to make experiences of receiving and administering help to self-help. A neuropsychologist administered the intervention.

The results showed a significant difference in symptoms of depression for the persons with MCI and dementia perceived by their caregivers. Both the persons with MCI and dementia and their caregivers obtained positive results from the intervention. Moreover insight and knowledge was gained and a positive change in attitude towards the illness was experienced.

It was concluded that it is possible to administer neuropsychological rehabilitation to persons with MCI and dementia with positive results. The present study showed that the intervention should be individualised and practical relevant with inclusion of caregivers to obtain the best results.

The study was conducted at the Dementia- and Memory Clinic at Glostrup Hospital, Denmark without external support/financing.

Based on the findings above we aim to continue developing and improving the method on an expanded group of participants.

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THEME: AQUIRED BRAIN INJURY

P-19

PSYCHOSOCIAL FUNCTIONING AFTER LONG-TERM NEUROPSYCHOLOGICAL REHABILITATION

Background/Objective: To evaluate the effects on psychosocial functioning after attending a long-term neuropsychological rehabilitation in a group. The study is focused on depression, psychosocial adaptation and quality of life.

Method: Participants of the day program (long-term neuropsychological rehabilitation) at The Center of Rehabilitation of Brain Injury in Aalborg are included in the study. The participants are adults with an acquired brain injury (traumatic brain injury, brain hemorrhage, stroke, encephalitis etc.)
Questionnaires included in the study: Demographic data (made by the author), Becks Depression Index, Becks Anxiety Index, Katz Adjustment Scale & WHO Quality of Life.
Occupational performance and physiological measures: COPM (Danish version), Body Mass Index (BMI), Blood pressure, Balance, Physical fitness & Walking pace.
The questionnaires/tests are administered three times: At the beginning of the course (T1), at the end of the course approximately 4 month after the start (T2), and 1 year after the end of the course (T3).

Preliminary results: 15 participants are now included in the study with data from T1 and T2. The group consist of 8 women and 7 men with an average age of 48,47 years.

Preliminary results show that the prevalence of depression decreased from 73,3% in T1 to 53,3% in T2, and the participants reported fewer symptoms of depression at the end of the course ($z = -2,066$, $p = 0,044$). Furthermore, the participants reported a better psychosocial adjustment at the end of the course with fewer symptoms of anxiousness; nervousness; depression and helplessness (Emotionality Index) ($z = -2,814$, $p = 0,005$); and fewer symptoms of confusion; expressive deficits and withdrawal (Disorientation/ Withdrawal index) ($z = - 3,143$, $p = 0,002$)
The results also showed that the participants evaluated their performance ($z = -3,041$, $p = 0,002$) and their satisfaction with their performance ($Z = -3,059$, $p = 0,002$) as higher at the end of the course, and in addition they had a better balance (-2,671, p=0,008).

Conclusion: The participation in the day program at The Center of Rehabilitation of Brain Injury in Aalborg has a positive effect on the prevalence of depression and on the reported symptoms of depression. Generally, it seems as though the participants have a better psychosocial adjustment at the end of the course. Furthermore, the participants are more satisfied with their performance and have a better balance.
The author estimates having results from all three administrations (7 participants) at the conference in August 2010.

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P-20

COMMUNITY-CENTRED REHABILITATION IN VIRTUAL WORLDS. DESIGNING A WEB BASED LEARNING AND COMMUNICATION ENVIRONMENT FOR PEOPLE WITH APHASIA

Based on the results of previous research on cognitive rehabilitation after a brain injury in a web 2.0 learning environment this abstract presents new hypotheses on community-centered rehabilitation in immersive virtual worlds (IVW). These new hypotheses form the basis in the Authors´ current PhD project at Aalborg University.

Previous research is based on a case study of a project for participants with aphasia at The Institute of Language, Speech and Brain Disorders, North Denmark. Since 2004 a rehabilitation course has been provided in a web based virtual communication- and learning environment, which integrates several dynamic tools – such as email, editor-based exercises and articles, Internet telephony, calendar and forays for discussions. The research investigated new pedagogical possibilities and methods for participants with aphasia in a web 2.0 environment e.g. the question on how the virtual environment supports re-development of the language skills and communicative competence, accessibility to and participation in discussion forays and society and finally, the re-construction of identity after a brain injury. The results clearly demonstrate new possibilities in the rehabilitation of people with aphasia.

In addition to the formalized teaching, the virtual environment provides many options for social interaction and communication activities due to the community-centred perspective by using social media, high participant activity and the dynamic and relevant substance.

Inspired by the results, particularly how training in communities both heightens motivation and develop communicative skills, my current PhD project is focusing on community-centered learning in 3D IVW and discusses how community based learning, perceptions and emotional impacts in the 3D IVW affect actions, socialization and communication. IVW open up for bodily immersion and interacting through avatar mediation. Related to the target group, this dimension has a particular interest since many have physically or/and cognitive difficulties. The project is based on an assumption that the involvement of body and nonverbal activities will affect the brain re-establishing process positively and promote cognitive and communicative functions. IVW provide the opportunity for use of multiple sensory stimuli, and for the promotion and development of the nervous lanes in the brain. Moreover, experiences and action on a conception level might stimulate nerve cells.

The project explores the possibilities for strengthening the neural network, communication and recounting identity. Brain research has shown that nerve cells can proliferate throughout life, and that the damaged nerve cells can form new ramifications, that new neurons are developing on the basis of stem cells and that the nerve cells can divide, if they are stimulated. If the nervous system is challenged and senses and emotions

are affected positively, the neuroplastisity will make people able to learn throughout their lives - even after a brain injury. By challenges the brain develops; and context and feedback play a key role in the ability to learn.

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P-21

IMPAIRMENT OF SOCIAL COGNITION, EMOTIONAL DECISIONMAKING AND BEHAVIORAL REGULATION AFTER ANEURYSMAL SUBARACHNOID HAEMORRHAGE AND NEUROSURGICAL (CLIPPING) OR ENDOVASCULAR TREATMENT (COILING)

Patients who experienced a subarachnoid haemorrhage (SAH) resulting from a ruptured cerebral aneurysm which has been treated with neurosurgical- (clipping) or endovascular intervention (coiling) frequently report problems concerning social and emotional functioning in daily life. These problems can indicate deficits in social cognition which can manifest themselves as emotional indifferences, apathy, emotional instability, agitation, impulsivity, risktaking behaviour, emotionally disinhibited behaviour, problems in decisionmaking, socially inadequate behaviour and problems in understanding or mentalising other's thoughts, desires and feelings. These problems could partially be caused by failure of psychological mechanisms and inadequate coping with regard to acceptance and adaptation and possible cognitive disturbances caused by brain damage. However, there is evidence that brain damage can cause deficits in social cognition, especially following damage to the orbitofrontal and ventromedial prefrontal cortex.
Social cognition implies the ability to perceive social information (i.e. facial expressions of emotions), to integrate this information with general knowledge of social schemes and conventions in order to understand the behaviour of others and to correctly adapt ones behaviour to the specific social situation.

Such disturbances in social and emotional behaviour can have serious, adversive, consequences for SAH patients who, after a period of initial recovery, try to return to work and social life but disturbances in social cognition prevent them from doing so. Deficits in social cognition are often seen in brain damage, especially when there is damage to orbitofrontal and/or ventromedial prefrontal brain circuits. An aneurysm of the anterior communicating artery (ACoA) is the most frequent location of a SAH and disturbances in social cognition, emotional decisionmaking and behavioral regulation are expected here.

However, aneurysms of other locations in the brain can also lead to disturbances in emotion perception, social cognition, emotional decisionmaking and behavioral regulation. Besides that, the specific intervention (clip or coil) could play a role in disturbances of social cognition. Social cognition has not been thoroughly investigated in SAH patients while there is evidence that changes in emotion and behaviour are permanent. Recently more neuropsychological tests to measure social cognition have become available. However social cognition is a broad domain and differents tests are necessary to measure all different aspects of social cognition in SAH patients.

Our study shows that extensive testing for social cognition is needed to measure all aspects of social cognition in SAH patients. Because of their relatively young age (mean 55 years), these deficits in social cognition can have serious, adverse consequences for the ability to function adequately in daily life, that is engage in social relationships and maintain a job.

25 SAH patients treated through neurosurgical-(clipping) or endovascular intervention (coiling) were tested with tests for social cognition, emotion perception and decision making (FEEST, RTME, Cartoons test, Faux pas test, IOWA gambling task).

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P-22

PSYCHOSOCIAL OUTCOME AFTER TRAUMATIC BRAIN INJURY: INTENSITY AND EXPERIENCED QUALITY OF SOCIAL RELATIONSHIPS

Previous research suggests that traumatic brain injury (TBI) increases the risk of social isolation. It has also been shown that an important factor influencing survival among TBI patients is maintaining relations with family and friends. The aim of this study was to assess how various TBI-related disorders are connected to the intensity and experienced quality of social interaction.

Subjects: The study group consists of 127 subjects (81 male, 46 female) who participated in the Individualized Neuropsychological Subgroup Rehabilitation Program (INSURE) in the Käpylä Rehabilitation Centre, Helsinki. Assessed by the Glasgow Coma Scale, 73 of the subjects had severe, 8 moderate and 46 mild injuries. The time interval between the injury and the assessments was 2 – 14 years.

Methods: The QOLIBRI is a new measure for assessing health-related quality of life after TBI. The Social relationships -scale of the QOLIBRI was used to assess subjective satisfaction in the social relationships. Information of the frequency of social contacts was derived from the Social and demographic questionnaire developed for the validation of the QOLIBRI. Subscales of the SF-36 were used to assess subjective experience of vitality and pain.
A clinical neuropsychologist rated the existence of disorders in ten domains: attention, memory, executive functions, affective and behavioral functions, communication, epilepsy, hemiparesis, visual and auditory functions and extra-cerebral injuries.

Results: The strongest correlation was found between the subjective satisfaction with social and the experienced vitality ($r_s=0.506$, $p<0.001$). Subjects with low vitality were less satisfied with their interpersonal relationships than patients with high vitality ($\chi^2(4)=33.8$, $p<0.001$). The number of social contacts in general did not differ between groups. However, closer examination revealed smaller number of contacts with friends ($\chi^2(4)=10.414$, $p=0.034$) and acquaintances ($\chi^2(4)=10.089$, $p=0.039$). Subjects with executive function disorder ($U=206$, $p=0.008$) and affective and behavioral disorders ($U=304$, $p=0.037$) were less satisfied with their interpersonal relationships than others, but no differences were found in the number of contacts. Both the subjects with auditory deficits and communication problems were less satisfied with their social relationships ($U=1170$, $p=0.002$; $U=863$, $p=0.028$) and had fewer contacts than other participants ($U=605$, $p=0.034$; $U=308$, $p= 0.040$).

Conclusions: Intensity and experienced quality of social relationships vary across TBI patients with different neurological and neuropsychological symptoms. The results suggest that the level of vitality plays a particularly important role in satisfaction with social relationships after TBI.

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THEME: CHILDHOOD – DEVELOPMENT AND DYSFUNCTION DUE TO MEDICAL CONDITIONS

P-23

SOCIAL FUNCTIONING IN CHILDREN WITH CHRONIC ILLNESS AS REPORTED BY PARENTS AND TEACHERS

Background: The aim of the present study was to investigate social functioning in children with a chronic, physical illness (CI), as reported by parents and teachers.

Methods: The present study used data from the second wave of the Bergen Child Study (BCS). 5781 children, aged 11-13, participated in this second wave of the BCS, of which 496 children had a CI. A factor analysis of the Autism Spectrum Screening Questionnaire (ASSQ) items identified a factor (named “social difficulties factor”) which was used to define social functioning in the present study. The single items and the sum score of the items included in the social difficulties factor were investigated in the present study.

Results: The sum score of the items in the ASSQ social difficulties factor was significantly higher in the group of children with CI than in their peers without CI, both as reported by parents and teachers (eta squared = .32 and .31, respectively). Moreover, parents of children with CI reported significantly more problems on the ASSQ social difficulties factor than teachers (eta squared = .10). Analyses of the single items showed a low to moderate agreement in the parent-teacher reports of the children with CI (kappa values ranging from .153 to .562). The largest informant difference was found for the item “bullied by other children”, on which parents of children with CI reported a definitely true answer on this item significantly more often than teachers (p =.0005).

Conclusion: The ASSQ social difficulties factor, used as a measure of social functioning in the present study, revealed more problems in children with CI than in their peers without CI, as reported by both parents and teachers. The low to moderate agreement in the parent-teacher reports of children with CI is in line with previous research, and underscores the importance of using multiple informants when assessing the social functioning of children with CI.

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P-24

MATCHING OF NEEDS IN COUPLES CARING FOR CHILDREN WITH MOTOR IMPAIRMENT

Objective: Fathers have historically been overlooked in research on families caring for children with chronic illnesses. Practically all we learned about such families is based on mother reports. Whether mothers and fathers differ in their perceived needs and support was the central issue of the current study.

Materials and methods: Thirty-seven intact couples caring for children (age range 1 to 7 years) with motor impairments were randomly selected out of the clinical population of about 100 families caring for children with physical handicaps. The motor impairments were caused by a variety of prenatal or perinatal problems. The children were followed up in the Department of Paediatric Neurology in Tampere University Hospital, Finland. The mothers and fathers completed the Support Functions Scale (SFS) and the Family Needs Scale (FNS). The SFS measures parent's satisfaction with the support they receive and the FNS measures family's needs for different resources.

Results: The family needs and support functions were associated with the severity of the functional limitations of the children. The severity of the child's impairment elevated needs in social support and family needs compared to families rearing children with mild motor disability only. Mothers and fathers did differ in their perceptions of support in the emotional and instrumental domains of SFS.

Conclusion: Mothers and fathers showed a high concordance in their perceived basic family needs and support satisfaction. However, higher distress in mothers compared to fathers was found in families caring for children with severe motor and mental impairment.

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P-25

NEUROCOGNITIVE FUNCTIONS AND BEHAVIOR IN CHILDREN WITH EARLY-ONSET EPILEPSY

Objective: Underlying pathology and early onset of seizures are both significant factors contributing to cognitive functions and behavior in children with epilepsy. However, there are only few studies focusing on these issues in young children with epilepsy. The purpose of this study was to describe the neurocognitive functions and behavior in a population based cohort of preschoolers with epilepsy. The study was planned: 1) to determine frequency of cognitive impairment, 2) to describe social skills and behavior and 3) to study epilepsy related factors that correlated with neurocognitive functions and behavior.

Participants and Methods: Study group consisted of population-based cohort (N=64) of preschool children (3–6 years) with active epilepsy from the Pediatric Neurology Unit at Tampere University Hospital. Prevalence of epilepsy was 3.2 / 1000 children. Mean age at onset of seizures was 29 months and duration 38 months. Total of 26 children had uncomplicated epilepsy and 38 complicated epilepsy. Controls (n=26) were age and gender matched healthy children from communal day-care centers. Medical data and results from previous psychological evaluations (Bayley Scales of Infant Development, Wechsler's Primary and Preschool Scale of Intelligence –Revised) were reviewed retrospectively from children's medical records. Behavior and social skills were assessed with Vineland Social Maturity Scale, Conner's Parent Rating Scales and Child Behavior Checklist.

Results: Cognitive function was considered to be within normal or borderline range for 50 %; mildly retarded for 22 % and moderately to severely retarded for 28 %. Cognitive impairment was related to age at onset of epilepsy, abnormal MRI and additional neurological problems. The parents of children with epilepsy reported fewer age-appropriate social skills than the parents of the controls. The children with epilepsy also demonstrated more attention problems in the Conner's Global Index, ADHD-Index and CGI-Restless-Impulsive. Further, the children with epilepsy had significantly higher Total Problems Scores and Internalized Problems Scores compared to their controls, but no difference was found in Externalizing Problems Score.

Conclusions: The results of this study focusing on preschool children concur with those of earlier studies on neurocognitive impairment and behavior problems in school-aged children with epilepsy. Cognitive impairment, lack of age-appropriate social skills and behavior problems are evident already early in the course of epilepsy. Impairments in neurocognitive functions and behavior were associated with complicated epilepsy, age at the onset of epilepsy, and poor seizure control. Prospective studies are needed to investigate the developmental course of children with epilepsy.

Authors:
Rantanen, Kati; Department of Psychology, University of Tampere, Finland, Department of Pediatrics, Tampere University Hospital, Finland
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Nieminen Pirkko; Department of Psychology, University of Tampere, Finland

P-26

CASE STUDY: COGNITIVE PROFILE OF AN 11-YEAR-OLD BOY WITH RARE FUNGAL INFECTION – ASPERGILLOMA

Aspergilloma is a clinical form of aspergillosis – a rare fungal infection of central nervous system. Aspergilloma usually occurs in immunocompromised patients; the main underlying condition among children being leukemia. Overall mortality due to aspergilloma in children younger than 18 years is high (65,4%). Combined antifungal and surgical treatment improves long-term outcome.

An 11-year-old boy was admitted to hospital with complaints of nausea, vomiting, fever and impaired vision. He was previously diagnosed with acute lymphoblastic leukemia and received cytostatic treatment. Two weeks before current hospitalization he was diagnosed with purulent meningitis.
The CT scan showed edema in left frontoparietal region; CT scan with contrast suggested an abscess. The tumor-like formation was surgically removed. Histopathological examination revealed Aspergillus hyphae and he was diagnosed with cerebral aspergilloma. Antifungal treatment was started.

Postoperatively the patient developed intracerebral hemorrhage and occlusive hydrocephalus which were inoperable due to coagulapathy. Neurological examination showed right-side spastic hemiparesis which improved with time.
The MRI scan performed after ten months showed chronic post-hemorrhage impairment and the patient still had slight right-side hemiparesis. During

this time the patient underwent neuropsychological evaluation.
According to NEPSY test battery moderate impairment was seen in auditory processing - difficulties were evident in auditory attention and response set and in comprehension of instructions; problems in face recognition and name learning were also present. His sensorimotor functions and visuospatial abilities were within normal range while his visual attention was good and overall planning skills were almost excellent.
With this cognitive profile the patient does quite well both socially and academically. He studies in the 6th grade according to regular middle-school curriculum. Because of ongoing cytostatic treatment and the reverse effect cytostatic treatment can have on developing brain and on cognitive outcome, the patients' cognitive development will be monitored dynamically – first follow-up neuropsychological evaluation will be performed after a year.
In conclusion, the cognitive profile of our young patient with such a severe focal brain damage is surprisingly good.

Authors:
Kaldoja, Mari-Liis; Tartu University Hospital, Children's Clinic, Estonia
Vals, Mari-Anne; Tartu University Hospital, Children's Clinic, Estonia
Mikkel, Sirje; Tartu University Hospital, Haematology and Oncology Clinic, Estonia
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P-27

THE ROLE OF REASONING AND EXECUTIVE ABILITIES ON SOLVING DIFFERENT TYPES OF MATH TASKS IN THIRD GRADE CHILDREN

A lot of studies have been carried out about cognitive correlates of math knowledge and skills. However, there is still no clear understanding of what cognitive deficits are central in math learning difficulties. Math consists of various types of tasks in solving of which the role of different cognitive processes may vary. The purpose of the present study was to examine the relations between cognitive abilities and math skills. The cognitive abilities were measured with tests of reasoning (verbal and non-verbal) and executive functions (working memory and planning). The working memory tasks consisted the tasks of verbal working memory which are differentiated by styles of information processing (simultaneous and successive) and types of presentation (visually and auditory). The math skills were measured with four types of tasks – recalling, computing, applying and problem solving. Recalling and computing tasks in math covers the basic facts, procedures, and concepts students need to know. Applying tasks focus on the ability of students to apply knowledge and conceptual understanding to solve routine problems and in primary math these are majority word problems. Problem solving tasks in math require transferring knowledge and skills into new situations. The participants were 682 third grade children (mean age = 9.07) from 28 elementary schools of Estonia. For analysing relations between cognitive abilities and math tasks, Structural Equation Modelling was used.

Reasoning ability was related to all four types of math tasks, planning was associated with problem solving and applying. The marginal role of working memory on different types of math tasks depended on processing style and modality of task's presentation. Results are discussed on the basis of previous studies.

Authors:
Männamaa, Mairi; Children's Clinic of Tartu University Hospital and University of Tartu, Estonia
Palu, Anu; University of Tartu (Estonia)Kikas, Eve, University of Tallinn, Estonia

THEME:AUTISM

P-28

COGNITIVE "CORE FUNCTIONS" AND SYMPTOMS IN CHILDREN WITH HIGH-FUNCTIONING AUTISM SPECTRUM DISORDER

Autism spectrum disorder (ASD) is diagnosed on the basic of a triad of symptoms in social interaction, communication and restricted and repetitive behavior. Cognitive models of autism have connected the triad of symptoms with deficits in three different cognitive "core functions": 1) Theory of Mind, 2) central coherence and 3) executive functions. No single unitary cognitive model has been able to explain the full triad of ASD-symptoms. The different "core functions" may be connected to different symptoms in the triad. So ASD could be characterized as the combination of deficits in the three "core functions". However, the three "core functions" have very rarely been investigated in the same study of children with high-functioning ASD.
The study has three aims: First, the study will investigate whether children with ASD in comparison with matched controls, have deficits in all three "core functions", or if there are children with deficits in only one or two of the "core functions". Secondly, the study will investigate the inter- and intra-individual variance in the "core functions" in children with ASD in comparison with matched controls, and investigate if the ASD-group can be differentiated into subgroups with specific cognitive profiles. Thirdly, the study will investigate the associations between deficits in the cognitive "core functions" and the full triad of symptoms.
In the study 60 high-functioning children ASD participants and 60 healthy control participants (age 8 -12) matched on age, gender, IQ and parents education level will be administrated a comprehensive neuropsychological test battery, tapping all three cognitive "core functions". The case group will be diagnosed using Autism Diagnostic Observation Schedule (ADOS) and Autism diagnostic Interview revised (ADI-R). All participants will be administrated Child Behavior Checklist (CBCL), Teachers Report Form (TRF) and Social Communication Questionnaire (SCQ) to validate the case- and control group.
The data inclusion has begun spring 2010 and will continue until autumn 2012.
The results will have implication for the cognitive accounts of autism.

The study will be submitted for acceptance to a ph. d. scholarship at the Faculty of Health Science, University of Southern Denmark at the first of May 2010.

Authors:
Wulff, Lill; Cand. Psych. Aut. (ph. d. student) Research Unit at Child and Adolescent Psychiatry, University Hospital of Odense, Denmark.
Bilenberg, Niels; Professor, MD, ph.d. Research Unit at Child and Adolescent Psychiatry University Hospital of Odense, Denmark
.Jepsen, Jens Richardt Møllegaard; Ph.d. student, Cand. Pæd. Psych. Aut, Child and Adolescent Psychiatry Center, University Hospital of Bispebjerg, Copenhagen.
Mortensen, Erik Lykke; Associate professor Cand. Psych., Institute of Public Health, University of Copenhagen.

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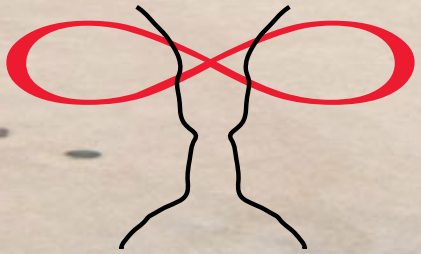
PEARSON

10TH NORDIC MEETING IN NEUROPSYCHOLOGY



THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION

W - 1

CEREBRAL PALSY AND TRAUMATIC BRAIN INJURY: A FAMILY-BASED APPROACH TO THE REHABILITATION OF THE CHILD

LUCIA WILLADINO BRAGA,

Presentation Sunday 13.00-16.00

The family-based, context-sensitive approach to rehabilitating the child with brain injury is the focus of this course. The evolution of this methodology, its theoretical and practical foundations and approach will be discussed, as well as the tools for evaluating the child, elaborating a transdisciplinary rehabilitation program the steps involved in training and incorporating the family, with its attendant details (eg, didactic materials, support groups, and home visits). The peer-reviewed randomized controlled trial study that confirms better outcomes for family-based vs. professional-based neurorehabilitation will be presented.

With the family serving as the foundation for this approach, other aspects of child neurorehabilitation – such as technology available today – will be addressed. Functional MRI and movement lab are essential tools in the rehab process, and several cases in which they are used will be presented. As a result of participating in this course, the learner will: (1) have an understanding of the importance of contextualizing the rehabilitation process of the child with brain injury; (2) be able to identify the means for including the family in the neuropsychological and motor development of the child with brain injury.

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Graduate: Universidade de Brasília - 1980 to 1983
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Doctoral: Universidade de Brasília - 1992 to 1994
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Maria Råstam, MD, PhD, is professor of Child and adolescent psychiatry at Lund University, Sweden. She also specialised in general psychiatry and has worked in adult psychiatry. She was a member of The National Board of Health and Welfare task force of treatment in ASD and AD/HD in adults. She has published widely in autism, AD/HD and the eating disorders.

W - 2

ASSESSMENT OF ADULTS WITH ASPERGER SYNDROME

MARIA RÅSTAM

Presentation Sunday 13.00-16.00

Childhood-onset neuropsychiatric disorders (including attention-deficit/hyperactivity disorder (AD/HD), autism spectrum disorders (ASD)) affect at least 5 % of all children. At least half of those with AD/HD and almost all with ASD will require clinical services in adult years.

National guidelines recommend that AD/HD should be recognised and treated throughout the lifespan (National Institute for Health and Clinical Excellence (NICE) 2008). Despite this, across much of Europe adult services for people with AD/HD and for the milder forms of the ASDs remain scarce, and the waiting lists endless.

In 2001, Göteborg Child Neuropsychiatric Clinic (CNC) was the only diagnostic centre specifically focused on neuropsychiatric assessments of childhood-onset disorders in the city of Göteborg, and further had nation-wide responsibility for assessments of autism and related disorders. Between January 2001 and April 2003, an “Adults project” was carried out at the CNC, offering specialized evaluations of possible childhood-onset neuropsychiatric disorders (AD/HD, ASD, tic disorders, and various kinds of learning disorders) in adults, some self-referred but the vast majority being referrals from adult psychiatrists dealing with “hard-to-diagnose” in- and outpatients attending psychiatric clinics. All assessments for the project were on an outpatient basis.

In this work shop clinical services for adults will be discussed, including evaluations, consultation, treatment and skills management e.g. to assess Asperger syndrome in adults, with what instruments? Do all patients need a neuropsychological evaluation? How to plan for a smooth transition to adult services for adolescents with ASD who continue to have impairing mental health problems in young adult years. What are the experiences of such clinical services in Sweden and what is recommended from regional and national task forces?

W - 3

ASSESSMENT OF EXECUTIVE FUNCTIONS

PAUL W. BURGESS

Presentation Sunday 13.00-16.00

Neuropsychological assessment of executive functions presents a challenge. There are three reasons why it is so difficult. The first is the nature of the system under measurement, which presents conceptual and practical psychometric issues beyond those encountered when measuring other cognitive systems. The second is the poverty of the psychometric tools at our disposal. There are many of them, but we know little about what they really measure, and there may be many different reasons why someone might fail them. The third is the lack of an overall decision-making framework for approaching the assessment of any one patient. This is largely a consequence of the way that the field has developed historically, and the differences in the professional demands placed upon clinicians and researchers: these two groups are largely trying to answer different kinds of questions. This workshop will address these issues in detail, with an emphasis upon the different steps one can follow in determining a principled, decision-making approach that is individualised to the assessment of particular clients. In this way one might maximise the chances of detecting problems and minimise the chance of drawing erroneous conclusions.

Although some basics of executive function assessment will be covered, the main emphasis of this workshop will be at a more advanced level, aimed at clinicians and researchers who already have some specialist knowledge. So it would be useful if, in preparation, delegates read the following paper:

Burgess, P. W., Alderman, N., Forbes, C., Costello, A., Coates, L. M-A., Dawson, D. R., Anderson, N. D., Gilbert, S. J., Dumontheil, I. and Channon, S. (2006) The case for the development and use of "ecologically valid" measures of executive function in experimental and clinical neuropsychology. Journal of the International Neuropsychological Society 12, 1-16.

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E-mail p.burgess@psychol.ucl.ac.uk

Professor Paul Burgess has a longstanding interest in executive functions and the frontal lobes. He has created a number of the neuropsychological tests used in the clinic (e.g. BADS battery, six elements test), and he has contributed greatly to the understanding of the role of the most anterior (rostral) parts of the frontal lobes in the planning and organization of behavior. The rostral prefrontal cortex (area 10) was until recently unknown territory, but thanks to Paul Burgess and his coworkers, this enigmatic part of the brain is finally yielding to scientific efforts ("BA10 is boss"!). An initial paper in this research line (Shallice & Burgess, 1991) is among the most cited in neuropsychology (802 citations by last count).

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Anders Fjell is professor of cognitive psychology. He has a psychology degree from Oslo in 2001, is trained in neuropsychology, ERP techniques (with Reinvang) and MR morphometric analyses (with Anders Dale at Harvard) Together with Kristine Walhovd he obtained Ph.D in 2005 (Integrating brain and behavior throughout the adult life-span). They now jointly lead a research program in Oslo to study the biological foundations of life-span changes with multiple methods, collaborating with a network of Norwegian and foreign reasearchers.

W - 4

BRAIN AND COGNITION THROUGH LIFESPAN - DEVELOPMENTAL AND AGE RELATED CHANGES IN THE BRAIN

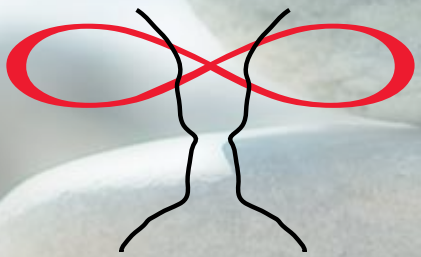
ANDERS M. FJELL

Presentation Sunday 13.00-16.00

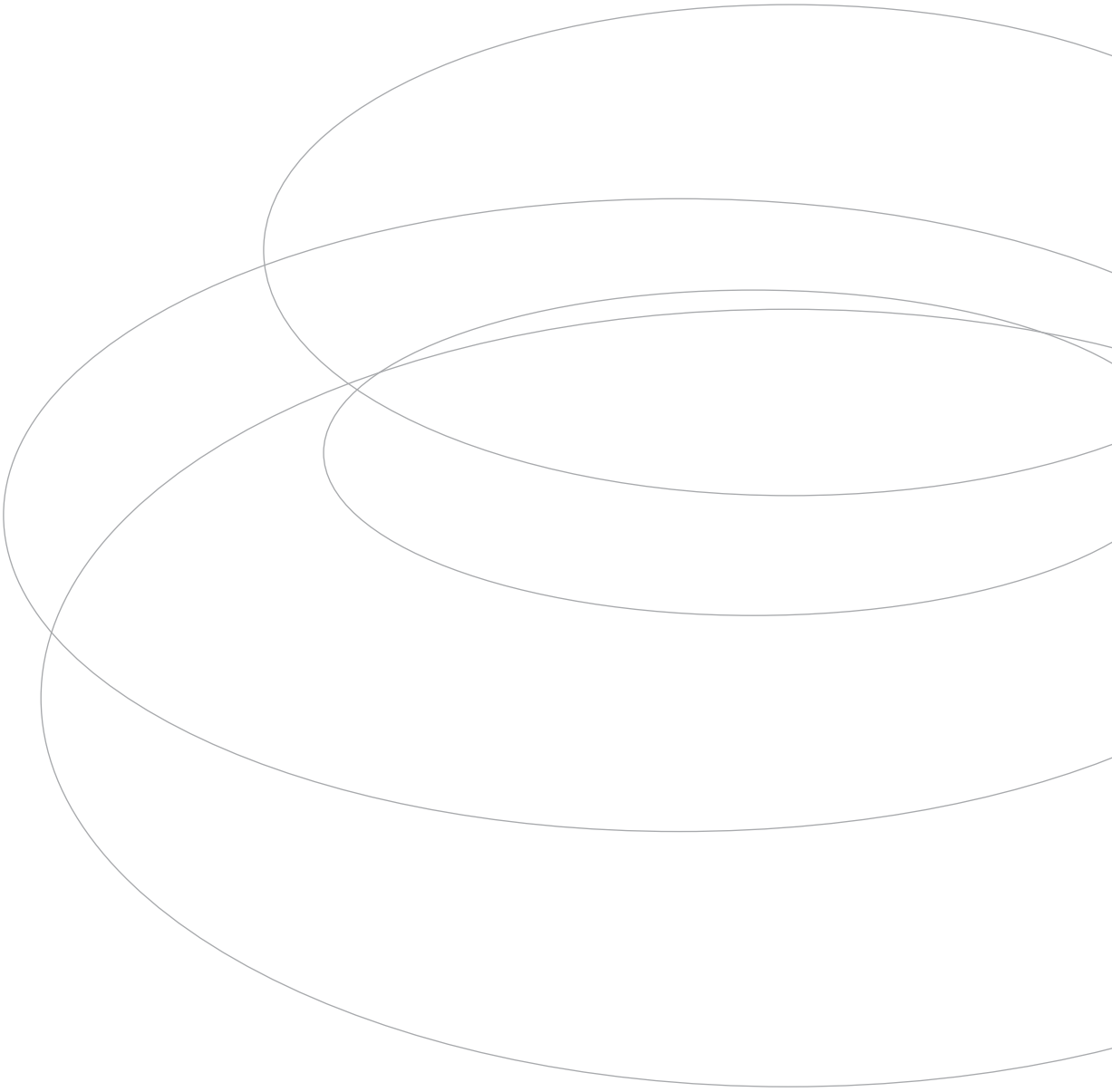
The brain undergoes continuous change across the life-span. While the rate of change is much larger in the first few years of life, alterations in brain structure and function are seen in healthy individuals also in adulthood. However, different parts of the brain show very different life-span trajectories. Some areas mature early in life, e.g. primary sensory areas, especially visual cortex, and also show less age-related change. Other structures mature late, e.g. cortical association areas and prefrontal areas. Some of these late-maturing areas show large decline in higher age, an observation which has given rise to the so-called “last-in, first-out” hypothesis. It has even been suggested that old age is characterised by retro-genesis, that is, an inverse developmental pattern. This hypothesis will be discussed critically. Another interesting feature about brain development and aging is the very different trajectories shown by white matter and cortical gray matter.

Contrary to a commonly held belief, recent neuroimaging studies show that cortical thickness decreases almost linearly in healthy elderly from 5-6 years to very high age. White matter, o the other hand, continues to grow in volume well into middle age. Also the microstructure of white matter, which can be measured with diffusion tensor imaging, continues to develop well into adulthood. Some researchers have suggested that the protracted growth of white matter may contribute to increased intellectual abilities into middle-age. This is an interesting hypothesis, which will be addressed in the workshop. A central topic of the workshop will be the cognitive consequences of the structural brain changes that are seen. To what extent does the evidence indicate a close structure-function relationship for the developing and aging brain?

10TH NORDIC MEETING IN NEUROPSYCHOLOGY



THE SOCIAL BRAIN - DEVELOPMENT AND DYSFUNCTION



WELCOME RECEPTION

Monday

Come and join us at the reception at Aalborg Congress & Culture Centre.
The Reception is open to participants.

CONFERENCE DINNER – UNDER THE TREE TOPS

Tuesday

The spectacular location of the conference dinner will be the Forest of Rold. For centuries, this area was known as a dubious place for ordinary people to be - especially at night. In the dark, the Rold Robbers would make their move and attack people who, for one reason or the other, had to pass through the forest, which was the only way to get from North to South at that time being.
You will arrive at the parking lot, just below Rebild National Park. From here you will be guided by the Robber King´s representative. You will risk an ambush from the outlaw men roaming the forest. Hopefully, you will live to experience the Robber Camp, where you´ll meet the Robber King, if he is in the mood. Get a refreshing brew and a strengthening snack before you display your skills at the fine art of Archery, Knife throwing, Axe throwing and sawing of heavy lumber. During your effort the Robber storyteller will sing and play to boost your moral, there will be burning stakes, camp-fire and sheer leisure…after the work is done…
The Robbers Salute you…
After a beautiful walk through the forest, the dinner is served at candle lid tables under the magnificent tree tops. During the dinner robber stories and entertainment will keep you alert and make the evening unforgettable!

Of course, the dress code of this evening is outdoor/casual and warm clothes and practical shoes are highly recommended!

Menu

Tapas on serving plates

Starter

Chunky plates of fish with basil marinated shrimps, broiled white fish and smoked Salmon accompanied with a creme of smoked creme cheese
Served with a variety of salad and Sauce Verte
Home baked bread and organic butter
Vegetarian choice: Risotto

Main Course

Served on big plates on the table
Whole Roasted Danish chicken with rosemary, Garlic and lemon
Served in the stock with white wine
Spring Deer cooked pink and tender, served with baked root veggies and Cantharell Béarnaise and petit fried potatoes
Crisp Roast Pork "on the bone" served with Sweet & Sour Plum Chutney
Crisp forest Salad and Ratatouille
Vegetarian choice : Cocotte with baked cabbage, crème fraiche ,Parmesan and Charlotte Onions

Dessert

Served on a plate
Chocolate truffle cake served with strawberry salad, peach and a white wine

Coffee/Tea to accompany dessert
Incl.
House wine Red & White/Beer/soda ad libitum

Bon Appétit

AFTERNOON AND EVENING TOUR TO LØNSTRUP

Wednesday

The tour will take you to some of North Denmark's most beautiful areas with unique and fantastic natural settings. The area is named "The Land of Light" due to its many hours of sunshine and the special light that many tourists enjoy every year. The bus will take us to the charming fishing village of Lønstrup on the west coast of North Jutland, but before arriving to Lønstrup there will be a visit to Rubjerg Knude Fyr – an old lighthouse on the edge of the sand dunes and almost completely covered with sand. The lighthouse lies in a gigantic migrating dune – one of the largest of its kind in Scandinavia. A first-hand possibility to watch how the force of nature rules in this part of the country. After the visit to Rubjerg Knude Fyr there will be made another stop, where we visit the last parts of the old church of Mårup. The church is less than 10 meters from falling into the sea, due to its position on the edge of the 40-metre-high cliff. The position offers a fantastic view of the North Sea and the coastal line.

In the late afternoon there will be time to enjoy a stroll in the charming streets of Lønstrup, where small art and craft shops and workshops lie side by side with specialist shops.

After dinner in one of Lønstrup's many restaurants the bus will return to Aalborg

LIMFJORDEN
LINDHOLM
NØRRE UTTRUP
RØRDAL
HENNEDAL
NØRRESUNDBY
SØLYST
ØSTER SUNDBY
VEJGÅRD
NØRRE TRANDERS
HASSERIS
KÆRBY
FRYDENDAL
Østerådalen
SØNDER TRANDERS
SKALBORG
GUG
See map 2
Lindholm Fjordpark
Lindholm Kridtgrav
Stadion
Kalkbrud
Aalborg Zoo
Skovdalen
Mølleparken
Stolpedalen
Kildeparken
Karolinelund
Den gamle golfbane
500m

Venues

1 *Aalborg Congress & Culture Centre*

1 *Aalborg University Hospital (look for Sygehus Syd on map)*

Hotels & Inns in Aalborg

A *Hotel CABINN Aalborg Fjordgade 20*

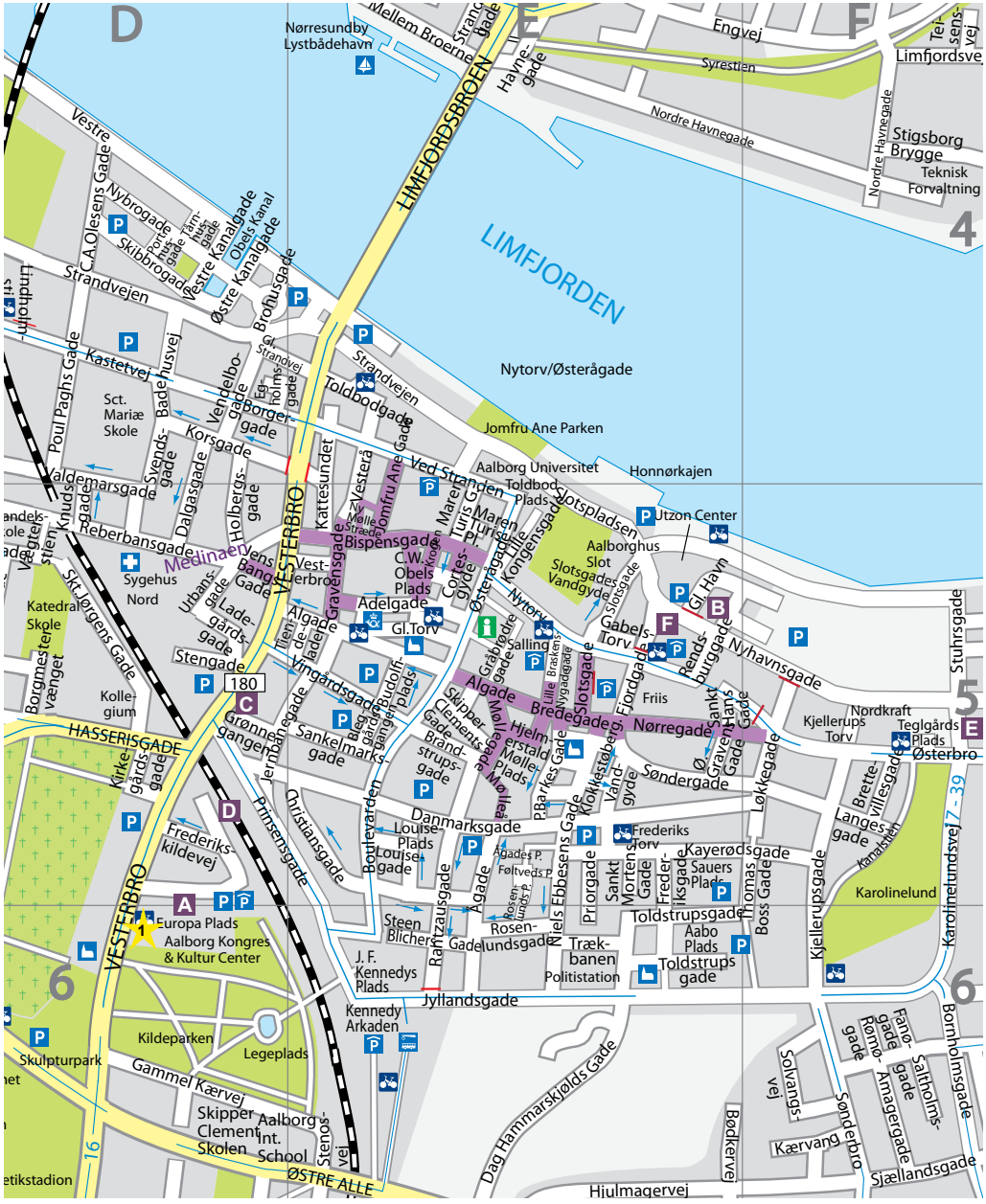
B *First Slotshotel Aalborg Rendsburggade 5*

C *Hotel Chagall Vesterbro 36*

D *Hotel Hvide Hus Vesterbro 2*

E *Hotel Aalborg - Sømandshjem Østerbro 27*

F *Quality Hotel Aalborg Vesterbro 12 C*



PRACTICAL INFORMATION

CONFERENCE DINNER AT ROLD FOREST

Meeting point for the conference dinner on Tuesday 17th of August is at the parking lot in front of Quality Hotel next to the congress venue. The busses are leaving at 6pm.
The return busses from Rold Forest leave every 20 minutes between 11 and 12pm.
The dress code for the evening is outdoor/casual and warm clothes and practical shoes are highly recommended!

CURRENCY/CREDIT CARDS

The official currency is Danish Kroner (Dkr). USD 1 = Dkr 6.05, EUR 1 = Dkr 7.44 (June 2010). Major credit cards are accepted in hotels, restaurants and shops. It is advisable to carry an identity card or any form of photo identification.

DISCLAIMER

The programme is correct at the time of printing. However, the organisers reserve the right to alter the programme if and as is deemed necessary.

DISCLAIMER/LIABILITY

The Organising Committee accepts no liability for any injuries/losses incurred by participants and/or accompanying persons, nor loss of, or damage to, any luggage and/or personal belongings.

EXCURSION TO LØNSTRUP

Meeting point for the excursion to Lønstrup on Wednesday 18th of August is at the parking lot in front of Quality Hotel next to the congress venue. The bus leaves at 4pm but please be ready at 3.45pm.
Return to Aalborg approx. 9pm.
Dinner is included in the excursion.

LANGUAGE

The official language of the conference is English. No simultaneous translation will be provided.

MEALS

Lunch and coffee/tea are included in the registration fee. Lunch will be served at Papegøjehaven and coffee/tea will be served at the foyer by Europahallen both at the congress venue

PRESENTATION PREVIEW ROOM

Please test your presentation on the PC available in the preview room (Skipperstuen), located on the 1st floor making sure that your presentation is to your satisfaction. You are responsible for bringing computer discs or USB memory sticks to the lecture room.

REGISTRATION

Conference registration opens Sunday the 15th of August at 11.30 and closes at 17.00. It is also possible to register on Monday the 16th of August between 8.00 and 9.00.

SMOKING

Smoking is prohibited inside public buildings.

THE VENUE

The Conference is held at Aalborg Congress & Culture Centre
(see the floor plan on page 8)

Located on the ground floor:
Europahallen (room 31): Main speeches and lectures
Foyer (room 35): Coffee/tea, exhibitions, registration/information office.

Located on the 1st floor:
Skipperstuen (room 6): Preview room
Kræmmerstuen (room 7): Conference room
Foyer (room 16): Posters and internet cafe
Musiksalen (room 18): Symposiums and sessions.
Radiosalen (room 19): Symposiums and sessions
Det lille teater (room 20): Symposiums and sessions
Papegøjehaven (rooms 11, 14 and 15): Restaurant where the lunch will be served.

WE´LL MEET AGAIN

Dear guest

Thank you very much for your contribution to this 10th Nordic Meeting. We hope you have enjoyed your stay in Denmark and look forward to see you again.

We´ll meet again to the 11th Nordic Meeting in Neuropsychology in 2012 in Oslo, where the conference will be a joint venture with INS.

More information:
www.insoslo2012.no

I'd like -

I'd like to know
what this whole show
is all about
before it's out

Piet Hein, Danish poet

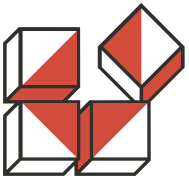
10 th Nordic Meeting
in Neuropsychology

International
Neuropsychological
Society

Danish Child & Youth
Neuropsychological
Society

Danish
Neuropsychological
Society

Icelandic
Neuropsychological
Society



Swedish
Neuropsychological
Society

Norwegian
Neuropsychological
Society

Finnish
Neuropsychological
Society

SELECTED REFERENCES FROM INVITED SPEAKERS IN ORDER OF APPEARANCE:

C. NEIL MACRAE

Macrae, C. N. & Cloutier, J. (2009). A matter of design: Priming context and person perception. *J.Exp.Soc.Psychol., 45,* 1012-1015.

Quadflieg, S., Turk, D. J., Waiter, G. D., Mitchell, J. P., Jenkins, A. C., & Macrae, C. N. (2009). Exploring the neural correlates of social stereotyping. *Journal of Cognitive Neuroscience, 21,* 1560-1570.

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Cunningham, S. J., Turk, D. J., Macdonald, L. M., & Macrae, C. N. (2008). Yours or mine? Ownership and memory. *Consciousness and Cognition, 17,* 312-318.

Jenkins, A. C., Macrae, C. N., & Mitchell, J. P. (2008). Repetition suppression of ventromedial prefrontal activity during judgments of self and others. *Proc.Natl.Acad.Sci.U S.A, 105,* 4507-4512.

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