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KLINIKUM
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CAMPUS INNENSTADT

DR. VON HAUNERSCHES KINDERSPITAL
DIREKTOR: PROF. DR. DR. MED. CHRISTOPH KLEIN

MOSES® THERAPY MODEL

Attachment Traumatization in Infancy
– Challenges, Treatment Approach and Results –

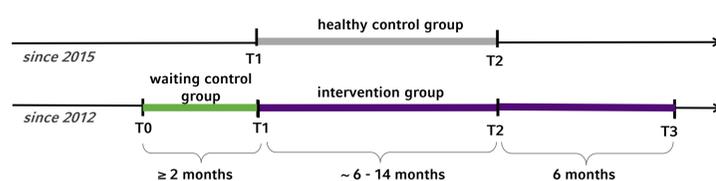**Brisch, K. H., Ebeling, L., Quehenberger, J., Hilmer, C., Oberschneider, L. & Budke, A.**

University Hospital of Munich | Dr. von Hauner Children's Hospital | Department of Pediatric Psychosomatic Medicine and Psychotherapy

INTRODUCTION

An in-patient, attachment-based intensive-care treatment for severely early traumatized children – MOSES® therapy model – offers intensive multidimensional care including, among other things, individual and group psychodynamic psychotherapy, art and music therapy, milieu therapy, intensive work with caregivers, and B.A.S.E.® - Babywatching, with the aim of creating a positive and sensitive environment where children may experience new and secure attachment relationships.

MATERIAL & METHODS

A longitudinal, matched-pair design (intended sample size: intervention group $N = 34$, waiting control group $N = 10$, healthy control group $N = 20$) is applied. Inclusion criteria are age between 6 and 13 years, severe early traumatization by caregivers, chronic symptoms of posttraumatic stress disorder, and the presence of an attachment disorder. The children are examined at a minimum of 2 months prior to treatment (waiting control group), at admission to treatment, at discharge and at a six-month follow-up. Healthy matched-pairs are tested twice to control for normative cerebral maturation during time of intervention.

since 2015
healthy control group
T1   T2

since 2012
waiting control group
intervention group
T0   T1   T2   T3
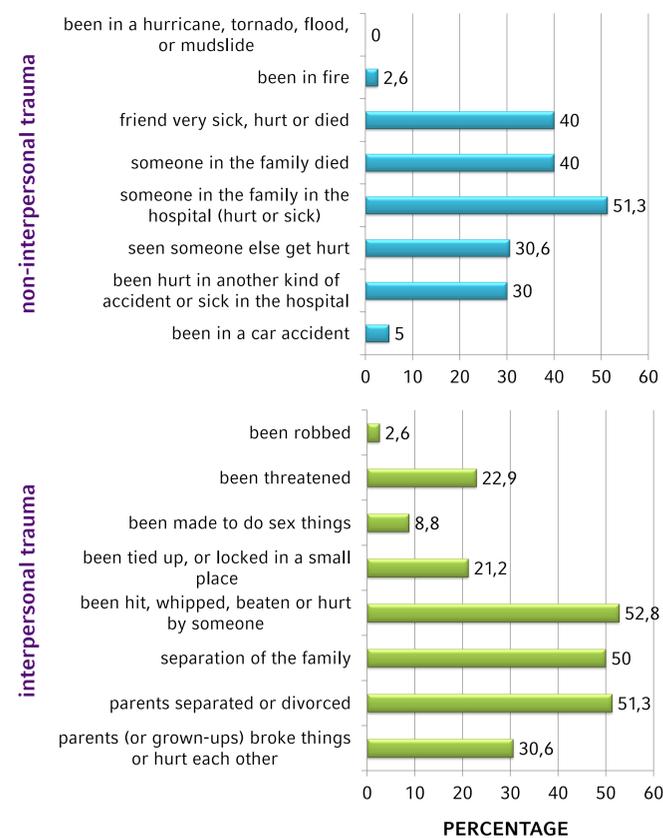≥ 2 months   ~ 6 - 14 months   6 months

Children's structural and functional MRI is used to display possible treatment effects in the anatomy of the hippocampus and other trauma-related structures, micromyelinization, and functional connectivity of the children at all points of measurement. During acquisition of (f)MRI, neutral, positive and negative stimuli, taken from the IAPS (International Affective Picture System, Lang, Bradley & Cuthbert, 1997) are presented to map the status and change in emotional processing.

CORRESPONDENCE: Karl-Heinz.Brisch@med.uni-muenchen.de
Ludwig.Ebeling@med.uni-muenchen.de

AIMS OF THE STUDY

Exemplary for the evaluation of the MOSES® treatment model, the structural change in brain anatomy is shown. As treatment effects, we expect:

- Structural and functional changes in the children´s brains with approximation of the treatment group´s brain structure and function to the control group.
- Enhanced connectivity in the treatment group as a sign of change and learning processes, which is expected to appear as a growing amount of white matter related to less grey matter (Zatorre, Fields & Johansen-Berg, 2012).

non-interpersonal trauma

been in a hurricane, tornado, flood, or mudslide	0
been in fire	2,6
friend very sick, hurt or died	40
someone in the family died	40
someone in the family in the hospital (hurt or sick)	51,3
seen someone else get hurt	30,6
been hurt in another kind of accident or sick in the hospital	30
been in a car accident	5

interpersonal trauma

been robbed	2,6
been threatened	22,9
been made to do sex things	8,8
been tied up, or locked in a small place	21,2
been hit, whipped, beaten or hurt by someone	52,8
separation of the family	50
parents separated or divorced	51,3
parents (or grown-ups) broke things or hurt each other	30,6

PERCENTAGE

The chart shows patients' exposure (=percentage; $N = 27$) to traumatic events recorded through the parents' version of the LITE-P (Greenwald & Rubin, 1999) questionnaire with an average of 4.39 traumatic events. We would expect even higher values, but the intervention group consists of many (64%) foster or adoptive children about whose early childhood little is known.
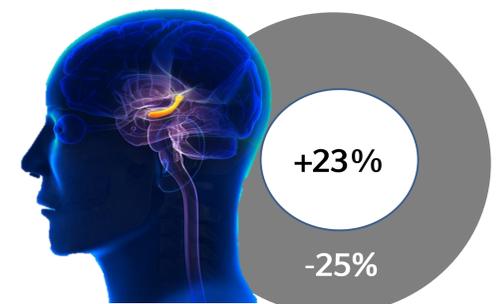
RESULTS

CASE SARAH (12y)

Symptoms:
Attachment Disorder
PTSD
Dissociation
Depression

CHANGE IN SARAH'S BRAIN ANATOMY
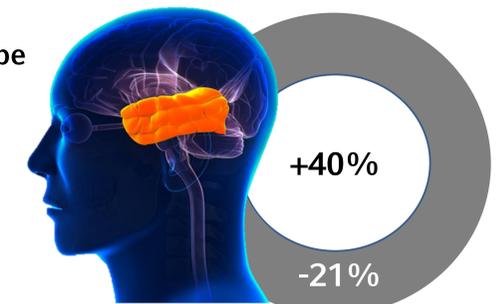**Volume change:** grey & white matter

Hippocampus
Functions:
-Important role in memory (spatial & episodic)
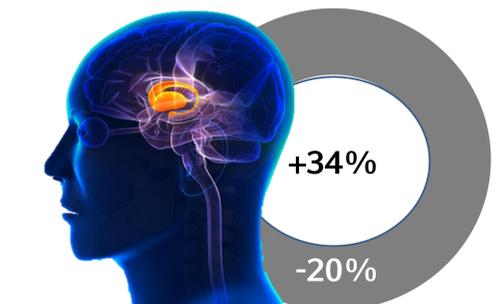- Long-term memory (e.g., trauma)

+23%
-25%

Medial temporal lobe
functions:
- Important role in memory (spatial & episodic)
- Recognition

+40%
-21%

Globus pallidus
functions:
- Motor coordination
- Associated with reward system and motivation

+34%
-20%

CONCLUSIONS

For a deeper understanding of the preliminary findings of the ongoing Moses® study, we must finish data acquisition, especially for the healthy and waiting control groups to control for maturation effects. Further data analysis along with group comparisons will then be conducted.

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REFERENCES Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1997). International affective picture system (IAPS): Technical manual and affective ratings. *NIMH Center for the Study of Emotion and Attention*, 39-58. Greenwald, R., & Rubin, A. (1999). Assessment of posttraumatic symptoms in children: Development and preliminary validation of parent and child scales. *Research on Social Work Practice, 9*(1), 61-75. Zatorre, R. J., Fields, R. D., & Johansen-Berg, H. (2012). Plasticity in gray and white: neuroimaging changes in brain structure during learning. *Nature neuroscience, 15*(4), 528-536.