Wie wird die Aufmerksamkeit gesteuert?

Prof. Dr. (BRA) Nelson Annunciato

Die Entwicklung des NS wird beeinflusst durch:

- das genetische Programm
- die epigenetischen Faktoren
  - pränatale Mikro-Umgebung
  - äußere Umgebung

Lernen

- Etymologische, **LERNEN** ist „Verwand“ mit **LEHREN** und **HINTERLISTEN**.

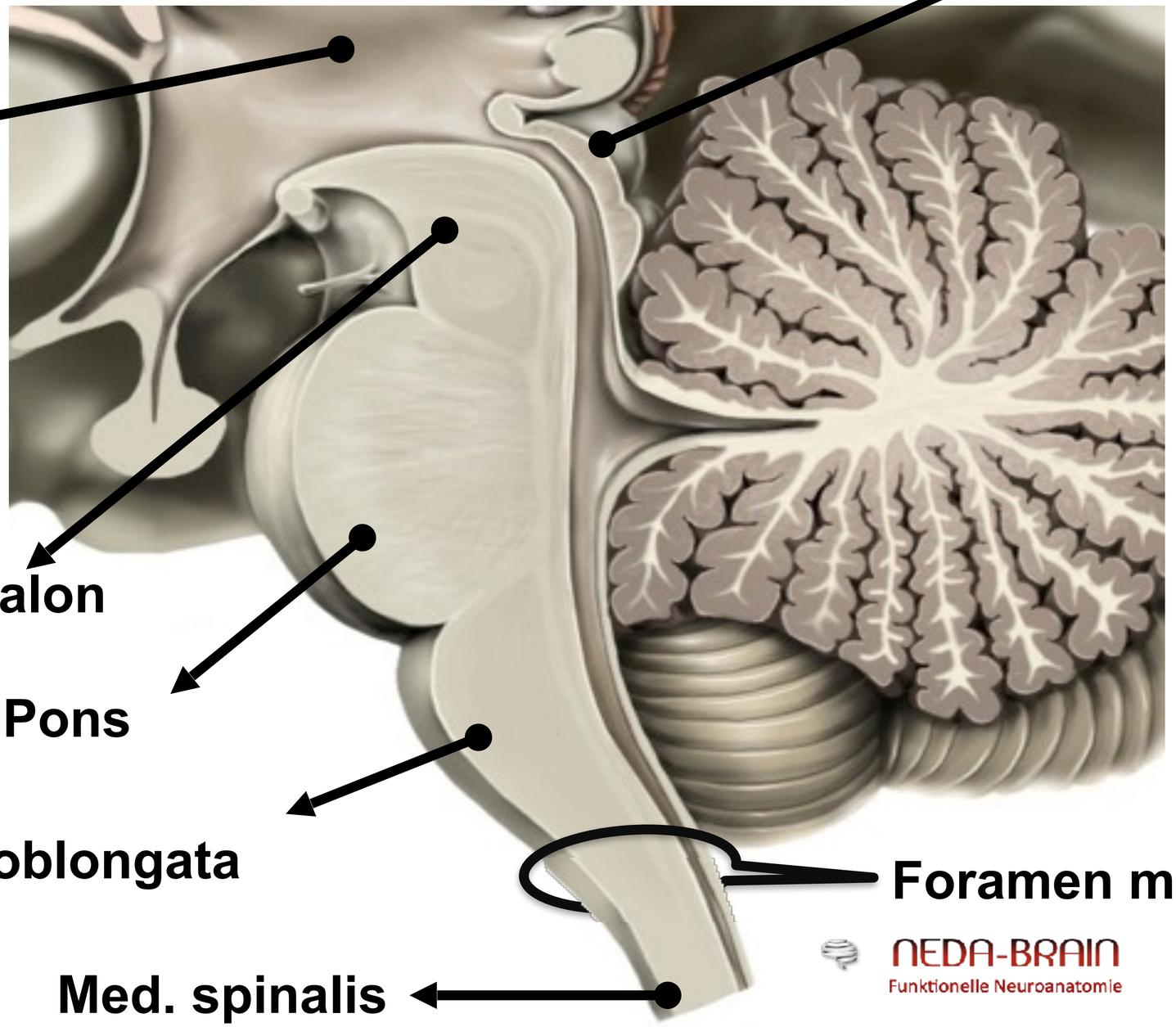
- Es gehört zu der Gruppe der Wörter wie **MACHEN, HABEN, FÄHIGKEIT**, ursprünglich, ***eine Spur verfolgen***.

- Gotisch, bedeutet “***lais***” **WEITER LEITEN**, **ICH WEISS ES** oder, noch genauer, **ICH FOLGTE DIE SPUR / DEN FADEN**.

- In der hindo-germanischen Wurzel, “***lais***” bedeutet **SPUR, FÜRCHE**.

Gedächtnis

Prozess, der uns erlaubt die Gegenwart zu fixieren und die Vergangenheit abzurufen, damit wir sie erkennen, in der Zeit platzieren. Diese Schritte können willkürlich (oder nicht) stattfinden.



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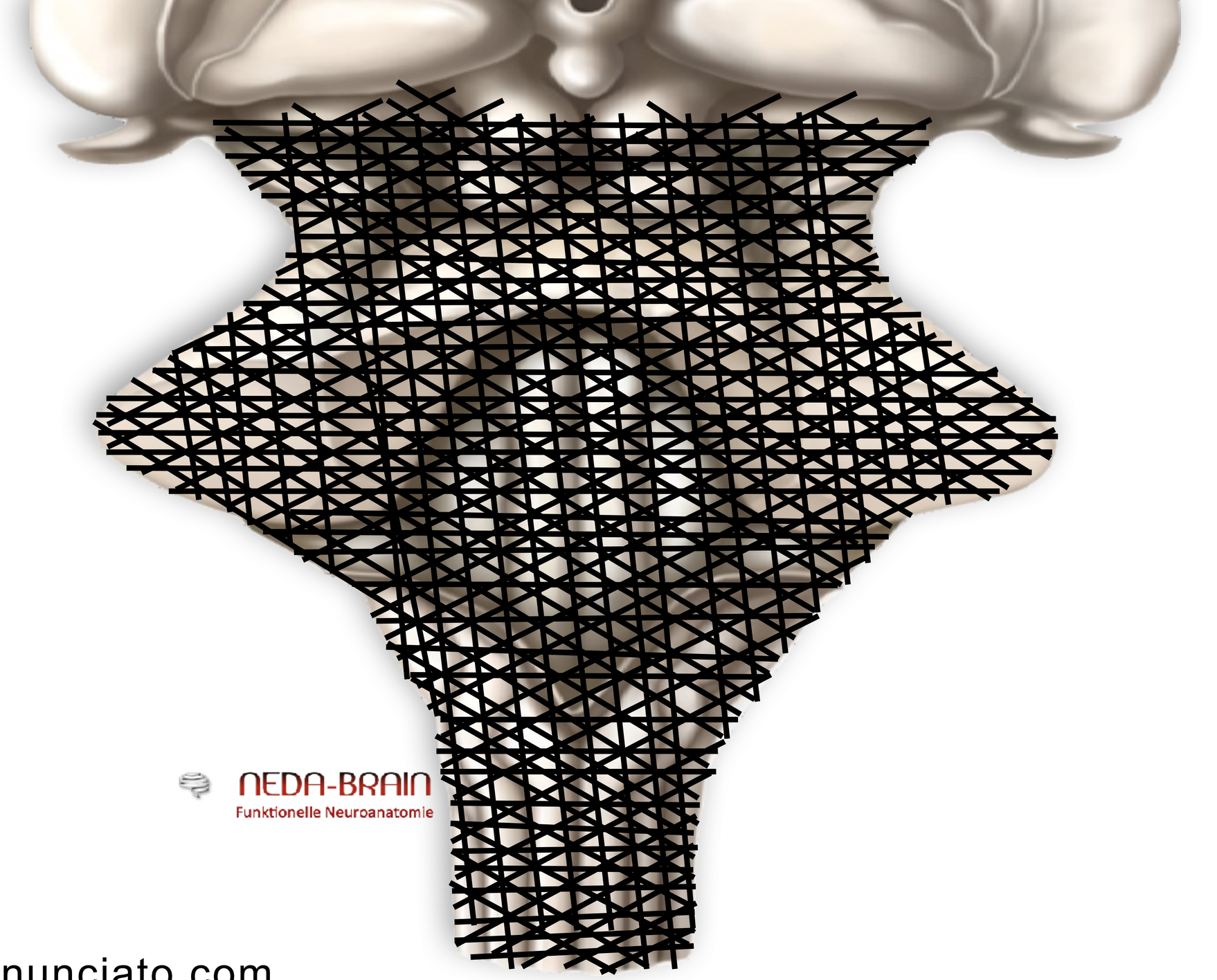
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A u f s t e i g e n d e s

R e t i c u l ä r e s

A k t i v i e r e n d e s

S y s t e m

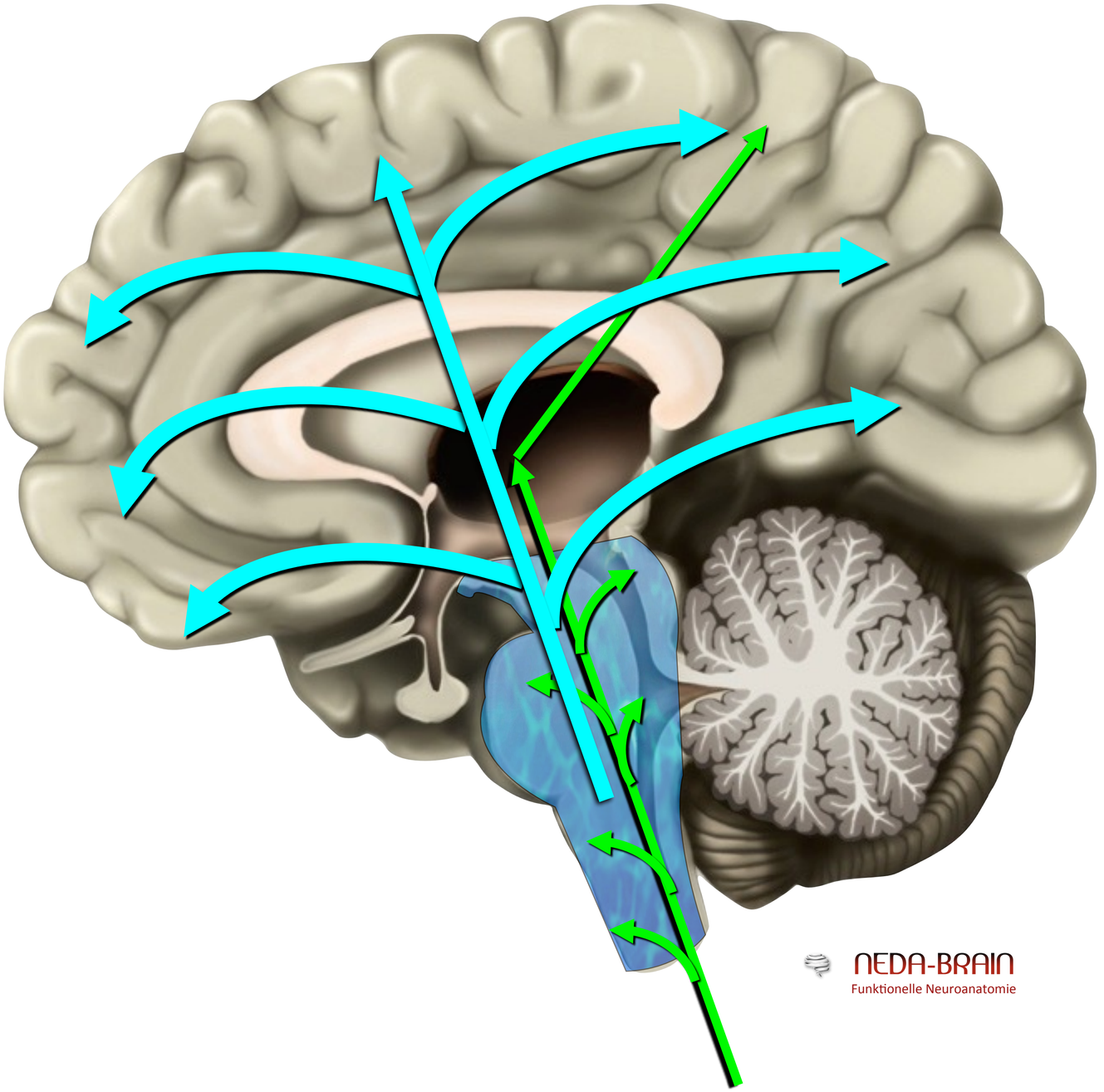
Es ist eine Voraussetzung

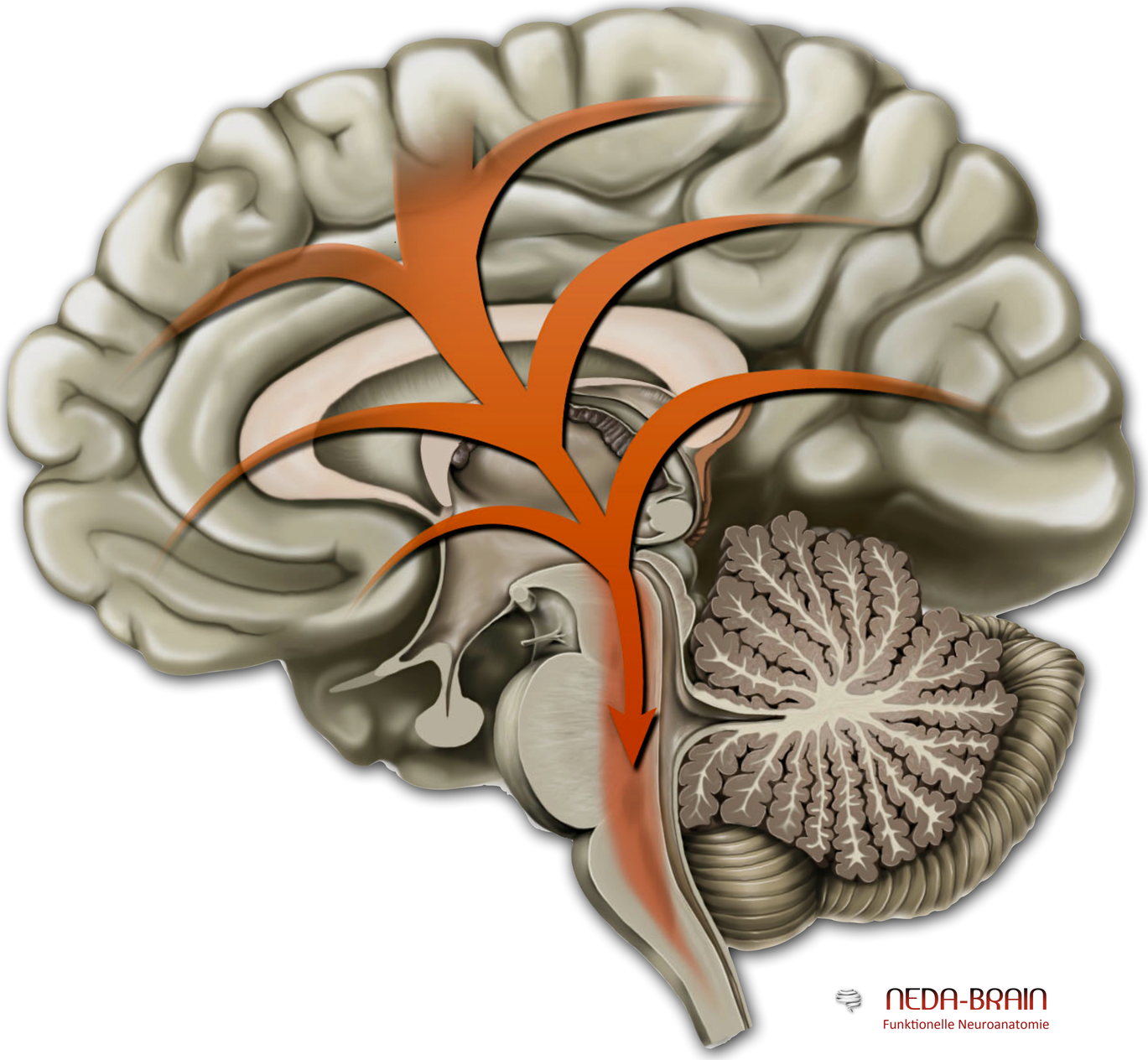
für verschiedene Verhaltensformen
und emotionale Manifestationen

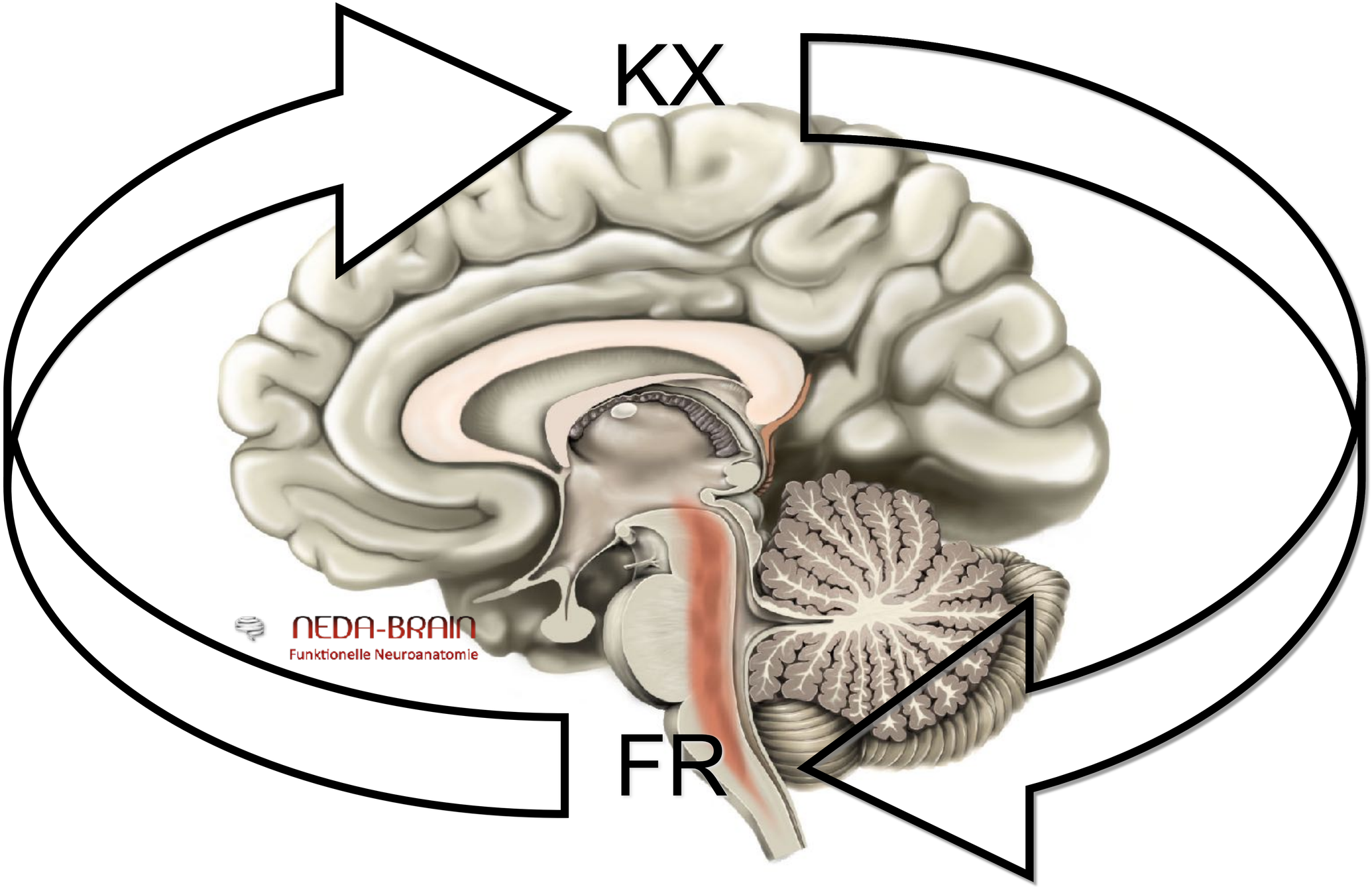
dass der Kortex aktiviert wird/ist!

Höhere Funktionen des Nervensystems

- Willkürliche Bewegung
- Sensorische Wahrnehmung
- Emotionales Verhalten
- Gedächtnis
- Kognition
- Sprache



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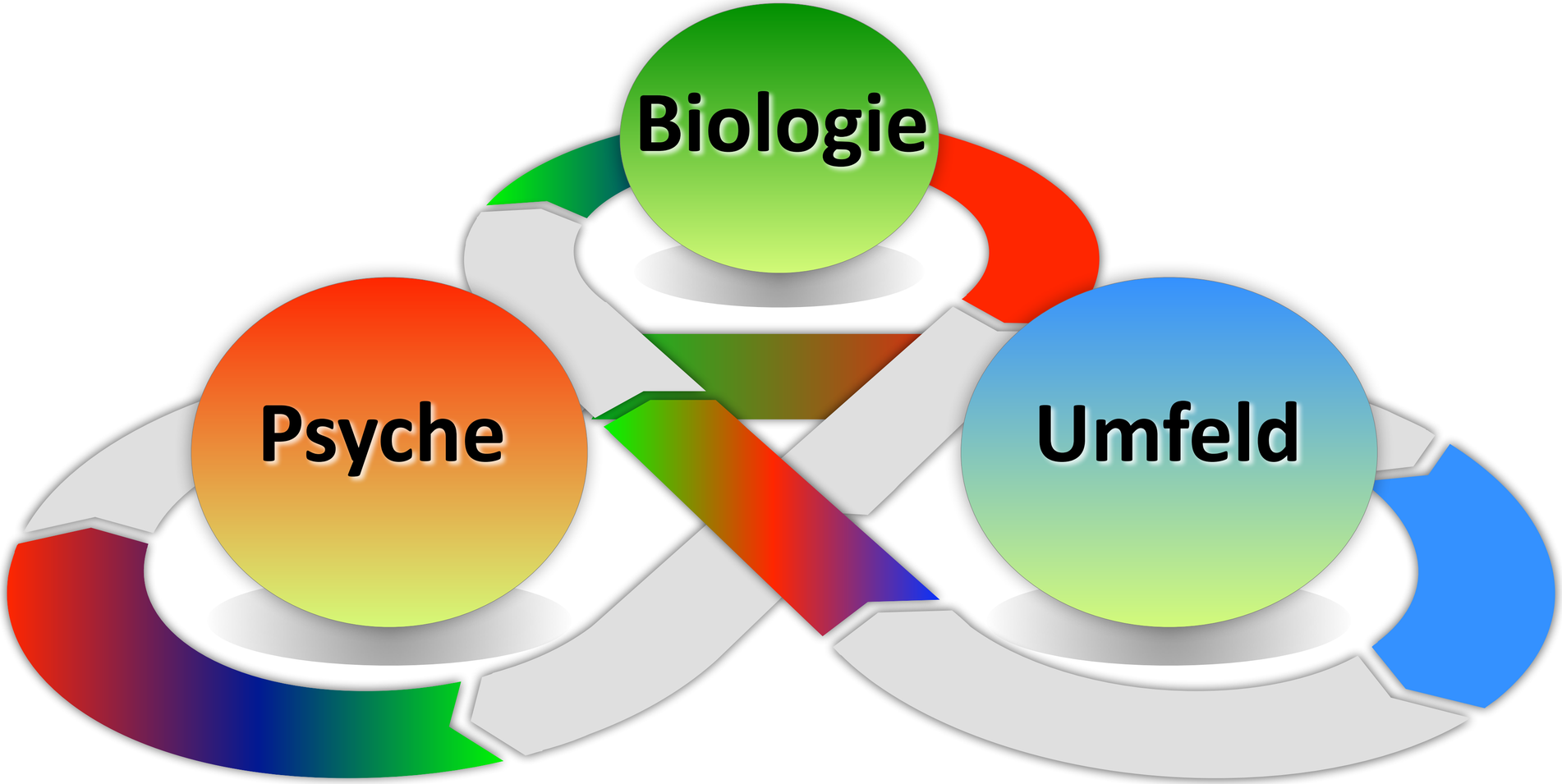


BJPsych | The British Journal of Psychiatry (2014)
204, 306–315. doi: 10.1192/bjp.bp.113.132126

Vitamin–mineral treatment of attention-deficit hyperactivity disorder in adults: double-blind randomised placebo-controlled trial

Julia J. Rucklidge, Chris M. Frampton, Brigette Gorman and Anna Boggis

Background
The role of nutrition in the treatment of attention-deficit hyperactivity disorder (ADHD) is gaining international attention; however, treatments have generally focused only on diet restriction or supplementing with one nutrient at a time.

Aims
To investigate the efficacy and safety of a broad-based micronutrient formula consisting mainly of vitamins and minerals, without omega fatty acids, in the treatment of ADHD in adults.

Method
This double-blind randomised controlled trial assigned 80 adults with ADHD in a 1:1 ratio to either micronutrients ($n=42$) or placebo ($n=38$) for 8 weeks (trial registered with the Australian New Zealand Clinical Trials Registry: ACTRN12609000308291).

Results
Intent-to-treat analyses showed significant between-group differences favouring active treatment on self- and observer- but not clinician-ADHD rating scales. However, clinicians rated those receiving micronutrients as more improved than those on placebo both globally and on ADHD symptoms. *Post hoc* analyses showed that for those with moderate/severe depression at baseline, there was a greater change in mood favouring active treatment over placebo. There were no group differences in adverse events.

Conclusions
This study provides preliminary evidence of efficacy for micronutrients in the treatment of ADHD symptoms in adults, with a reassuring safety profile.

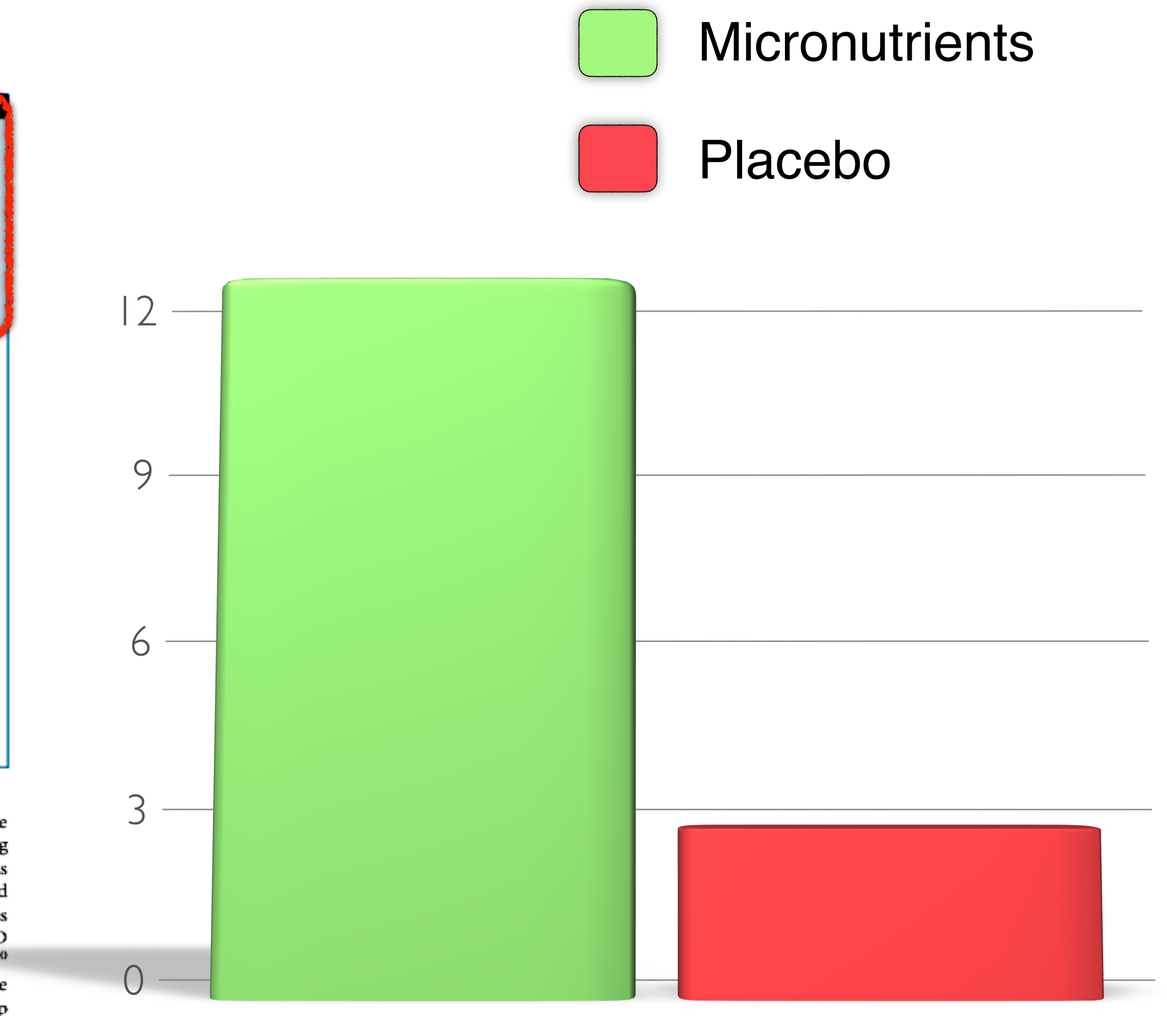
Declaration of interest
None.

Rucklidge et al., British Journal of Psychiatry, 2014

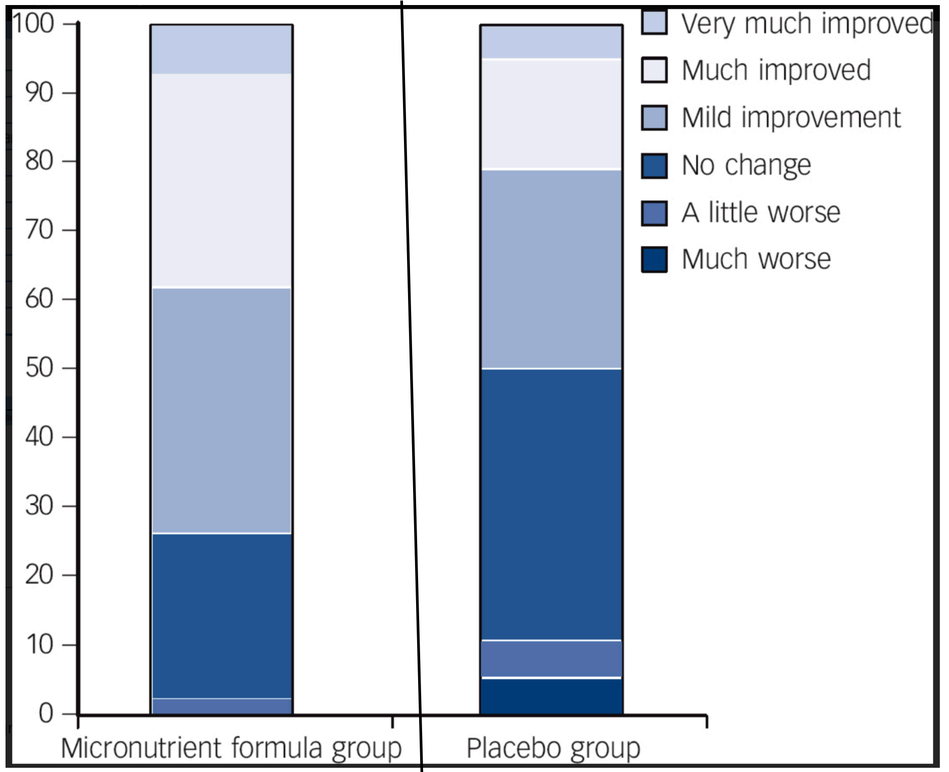
Attention-deficit hyperactivity disorder (ADHD) is one of the most common psychiatric disorders characterised by impairments in inattention, hyperactivity and impulsivity[1] and the prevalence in adults has been estimated between 4 and 5%.[2] Poor long-term outcomes of children followed to adulthood have been documented in both treated and untreated samples.[3,4] Response to medications is lower in adults with ADHD compared with those in children, and comorbid conditions alongside ADHD in adults appear to lower the response further.[5] Concerns over adverse effects of medications, limited accessibility to psychotherapy, reduced responses because of comorbidities and disappointing long-term outcomes have resulted in many individuals with ADHD seeking alternative treatments.[6,7] Notwithstanding some negative studies in the 1970s and 1980s,[8,9] there has been a recent resurgence in interest regarding the effects of diet and nutrient interventions on ADHD symptoms.[10] Topics investigated include the impact of processed foods,[11] elimination diets,[12] food dyes,[13] essential fatty acids[14] and early malnutrition.[15] Despite this growing interest, the number of robust randomised controlled trials (RCTs) testing nutrient interventions is few in comparison with the numerous studies of psychopharmacological treatments.[16]

There is an expanding evidence base concerning the role of micronutrients (vitamins and minerals) in the pathophysiology and management of psychiatric symptoms including mood, inconsistent findings.[16] Only one masked RCT has assessed the effects of broad-spectrum nutrients in ADHD.[27] Children taking an herbal supplement for 4 months showed greater improvements on the Test of Variables of Attention (TOVA), but the doses and type of individual nutrients were not quantified. Other studies assessing micronutrient combinations for the treatment of ADHD have reported positive benefits but have been open-label,[28–30] retrospective database analyses,[31] case reports[32] or patient-preference studies.[33] This paper presents the first double-blind, parallel-group RCT designed to assess the efficacy and safety of a broad-spectrum micronutrient formula, EMPowerplus, compared with placebo in medication-free adults with ADHD. This micronutrient formula has been examined in over 20 published studies for treating various mental conditions, has documented evidence of both short- and long-term safety data[34] and has been more extensively examined in psychiatric conditions than any other multivitamin/multimineral formula;[35] however, as of yet, no masked trials have been conducted on it. Efficacy measures included standardised self-report, observer-rated and clinician-rated scales capturing attention, hyperactivity/impulsivity, mood, quality of life and overall psychiatric functioning.

Method



Veränderungen der ADHS-Symtomatik nach 08 Wochen



Variable	Micronutrient formula group ($n = 34$)		Placebo group ($n = 35$)		
	Baseline, mean (s.e.)	Change, mean (s.e.)	Baseline, mean (s.e.)	Change, mean (s.e.)	*P*
Nutrient levels					
Vitamin D, nmol/l	62.4 (4.4)	15.6 (3.1)	68.5 (3.8)	0.4 (3.4)	**0.002**
Vitamin B_{12}, pmol/l	353.3 (18.3)	383.1 (30.2)	374.9 (22.7)	1.1 (31.3)	**<0.001**
Folate, nmol/l	21.1 (1.5)	24.3 (2.2)	22.4 (1.4)	−1.6 (31.3)	**<0.001**
Magnesium, mmol/l	0.89 (0.01)	−0.00 (0.01)	0.92 (0.01)	−0.01 (0.01)	0.724
Ferritin, µg/l	116.9 (13.1)	−2.44 (5.57)	105.6 (11.8)	−6.83 (5.49)	0.577
Iron, µmol/l	18.3 (0.9)	−0.4 (1.0)	19.3 (1.2)	0.4 (1.0)	0.568
Calcium, mmol/l	2.39 (0.02)	0.03 (0.02)	2.39 (0.02)	0.01 (0.02)	0.286
Zinc, µmol/l	12.1 (0.2)	0.4 (0.3)	12.5 (0.2)	0.1 (0.3)	0.423
Copper, µmol/l	15.4 (0.6)	0.4 (0.4)	13.5 (0.4)	−0.4 (0.4)	0.171

"Wenn der Schlaf keine lebenswichtige Funktion hätte, dann wäre dies der größte Fehler, der je im Evolutionsprozess aufgetreten ist! "

Rechtschaffen, A. *The Control of Sleep* in Human Behavior and its Control, ed. William A. Hunt (Cambridge, MA: Shenkman Press, 1971): 88.

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Study Shows Small Screens in Children's Bedrooms Can Harm Sleep

1/5/2015

Research has shown children who have a television in their bedrooms have later bedtimes and shorter sleep duration. A new study shows similar sleep problems in children who have a "small screen," such as a smartphone in their room. The study, "Sleep Duration,Restfulness, and Screens in the Sleep Environment," published in the February 2015 Pediatrics (published online Jan. 5), surveyed 2,048 fourth- and seventh-graders about bedtimes, wake times, feelings of sleepiness and the presence of televisions, smartphones and other small screens in their bedrooms. Children who slept near a small screen and children with a television in their bedroom had shorter weekday sleep durations. Children who slept near a small screen were more likely to report perceived insufficient sleep. TV or DVD viewing and video or computer game playing were also associated with shorter weekday sleep duration and sleepiness. Children with screens in their sleep environment and more screen time also had later bedtimes. Study authors conclude the findings caution against children's unfettered access to screen-based media in their bedrooms.

# # #

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Sleep-deprived Kids More Likely to Have Problems as Teenagers

3/30/2009

Sleep problems during childhood may be associated with neuropsychological performance during adolescence. In the study, "Sleep Problems in Childhood Predict Neuropsychological Functioning in Adolescence," parents reported on their children's sleep problems at 5, 7 and 9 years of age. Neuropsychological functioning was assessed through testing when the participants were 13 years of age. Data from 720 participants were analyzed and results indicate that children reported to have sleep issues such as difficulties initiating and maintaining sleep may have slightly poorer functioning on certain tasks in adolescence. These tasks tap skills including complex visual scanning. Sleep disturbance in childhood was not associated with many other areas of performance (e.g. verbal fluency). This preliminary research needs replication, but emphasizes the need to invest in and increase understanding of the links between sleep problems and neuropsychological functioning in youth.

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Article

Sleep Problems in 2- to 5-Year-Olds With Autism Spectrum Disorder and Other Developmental Delays

Ann M. Reynolds, Gnakub N. Soke, Katherine R. Sabourin, Susan Hepburn, Terry Katz, Lisa D. Wiggins, Laura A. Schieve, Susan E. Levy

BACKGROUND: Sleep problems can impact daytime behavior, quality of life, and overall health. We compared sleep habits in young children with autism spectrum disorder (ASD) and other developmental delays and disorders and in children from the general population (POP).

METHODS: We included 2- to 5-year-old children whose parent completed all items on the Children's Sleep Habits Questionnaire (CSHQ) in a multisite case-control study: 522 children with ASD; 228 children with other developmental delays and disorders with autism spectrum disorder characteristics (DD w/ASD); 534 children with other developmental delays and disorders without autism spectrum disorder characteristics (DD w/o ASD); and 703 POP. Multivariable analysis of variance compared CSHQ mean total score (TS) and subscale scores between groups. Logistic regression analysis examined group differences by using TS cutoffs of 41 and 48. Analyses were adjusted for covariates.

RESULTS: Mean CSHQ TS for children in each group: ASD (48.5); DD w/ASD (50.4); DD w/o ASD (44.4); and POP (43.3). Differences between children with ASD and both children with DD w/o ASD and POP were statistically significant. Using a TS cutoff of 48, the proportion of children with sleep problems was significantly higher in children in the ASD group versus DD w/o ASD and POP groups (adjusted odds ratios [95% confidence intervals]: 2.12 [1.57 to 2.87] and 2.37 [1.75 to 3.22], respectively).

CONCLUSIONS: Sleep problems are more than twice as common in young children with ASD and DD w/ASD. Screening for sleep problems is important in young children to facilitate provision of appropriate interventions.