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KLINISCHE VORLESUNG

60. LINDAUER PSYCHOTHERAPIEWOCHEN 2010

KÖRPERSCHMERZ UND SEELENSCHMERZ

ULRICH T. EGLE

AGENDA

I. Trauma, Bindung und Schmerz
S: Patienteninformation

II. Differentialdiagnose, differentielle Indikation therapeutische Prinzipien
S: Analgetika/Opioide, Placebo/Nocebo

III. Somatoforme Schmerzstörung
S: Psychotherapie/Videos

IV. Fibromyalgie und funktionelle Schmerzsyndrome
S: Craniomandibuläre Dysfunktion/Video doku–mentierter Verlauf mit 10-J-Katamnese

V. Begutachtung chronischer Schmerzzustände
S: Begutachtung PTBS

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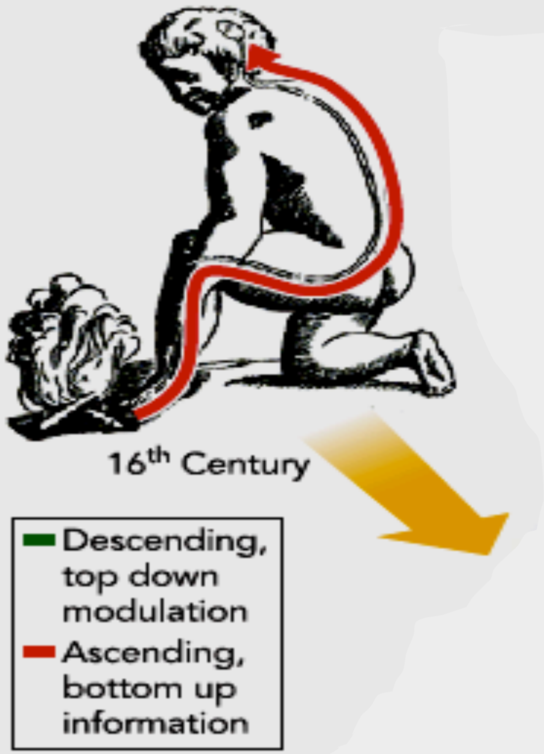
SCHMERZPARADIGMA – FRÜHER UND HEUTE

Bingel & Tracey, Physiology 23:371-380, 2008



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60. LINDAUER PSYCHOTHERAPIEWOCHEN 2010

KÖRPERSCHMERZ UND SEELENSCHMERZ I

TRAUMA, BINDUNG UND SCHMERZ

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JAMA. 1997;277:1362-1368

Clinical Characteristics of Women With a History of Childhood Abuse

Unhealed Wounds

Jeanne McCauley, MD, MPH; David E. Kern, MD, MPH; Ken Kolodner, ScD; Laurie Dill, MD; Arthur F. Schroeder, MD; Hallie K. DeChant, MD; Janice Ryden, MD; Leonard R. Derogatis, PhD; Eric B. Bass, MD, MPH

Results.—Of the 1931 respondents, 424 (22.0%) reported childhood or adolescent physical or sexual abuse. Compared with women who reported never having experienced abuse (n=1257), women who reported abuse as children but not adults (n=204) had more physical symptoms (mean±SE, 6.2±0.2 vs 4.0±0.9; *P*<.001) and had higher scores for depression, anxiety, somatization, and interpersonal sensitivity (low self-esteem) (*P*<.001); were more likely to be abusing drugs (prevalence ratio [PR], 4.7; 95% confidence interval [CI], 2.9-7.6) or to have a history of alcohol abuse (PR, 2.2; 95% CI, 1.5-3.2); were more likely to have attempted suicide (PR, 3.7; 95% CI, 2.6-5.1); and were more likely to have had a psychiatric admission (PR, 3.2; 95% CI, 2.2-4.7). Women abused only as children did not differ from women who reported current, but not childhood, abuse in number of physical symptoms, emotional distress, substance abuse, or suicide attempts. Patients who reported both childhood and adult abuse had higher levels of psychological problems and physical symptoms than those who reported childhood or adult abuse alone.

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FOLGEN FRÜHER STRESSERFAHRUNGEN FÜR DAS SCHMERZERLEBEN

- Erhöhte Sensibilität für periphere Schmerzreize bei in der Kindheit sexuell traumatisierten Frauen (Scarinci et al 1994)

- Erhöhte Schmerzempfindlichkeit bei Impfung zur Einschulung bei im ersten Lebensjahr ohne Narkose beschnittenen Jungen (Taddio et al 1997)

>> frühe psychische wie biologische Stressoren erhöhen die spätere Schmerzempfindlichkeit

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"Psychogenic" Pain and the Pain-Prone Patient*

GEORGE L. ENGEL, M.D.
Rochester, New York

AMERICAN JOURNAL OF MEDICINE 1959

Psychosoziale Belastungen in der Kindheit prädisponieren für psychogenen Schmerz

Schmerz hat eine Beziehungsfunktion

This leads to an interesting question, namely, how is it that this contribution to the understanding of pain has had so little influence on medicine in general, even on psychoanalysis. I believe the explanation is to be found in the peculiarities of medical practice.

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Reliability of Retrospective Assessments of Childhood Experiences in Germany

Jochen Hardt, PhD, Anna Sidor, PhD, Michael Bracko, MD, and Ulrich Tiber Egle, MD

J Nerv Ment Dis 2006;194: 676–683

Validity of adult retrospective reports of adverse childhood experiences: review of the evidence

Jochen Hardt[1] and Michael Rutter[2]
[1]University of Mainz, Germany; [2]Institute of Psychiatry, London, UK

Journal of Child Psychology and Psychiatry 45:2 (2004), pp 260–273

Nicht so valide wie prospektive Erfassung

>> eher Unterschätzung des Ausmaßes der Belastung!!

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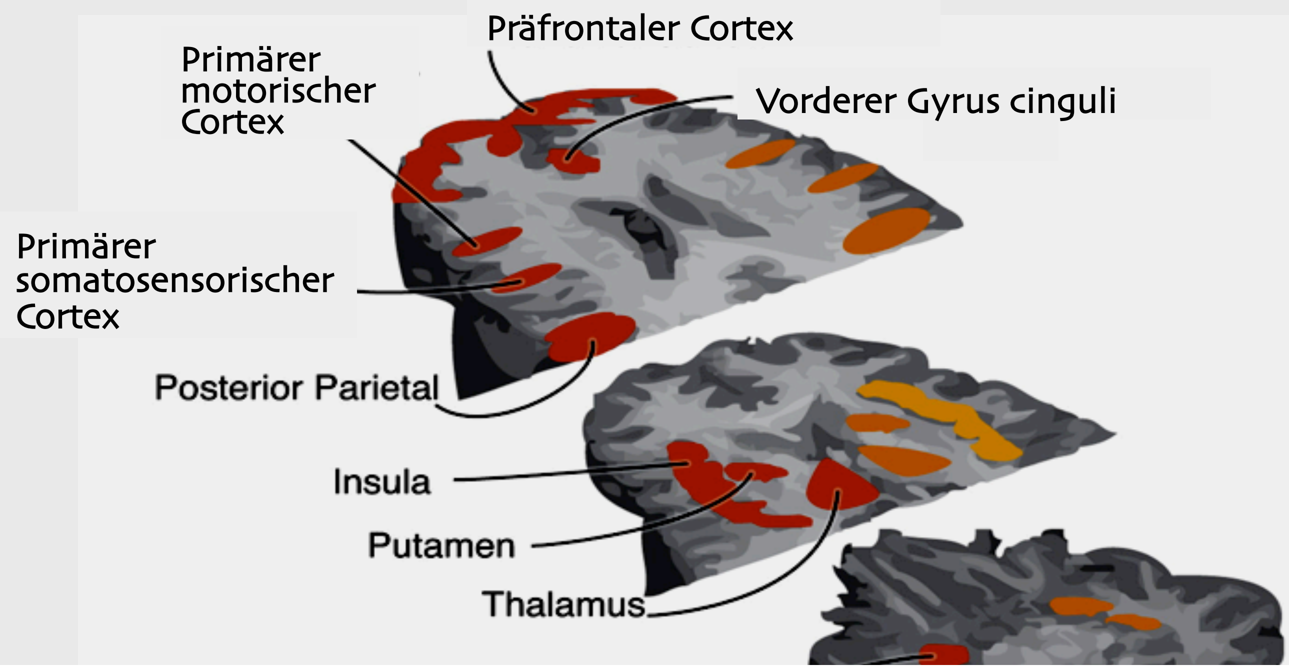
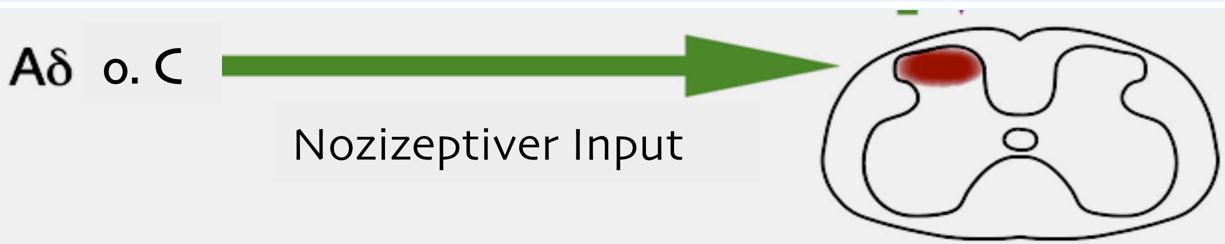
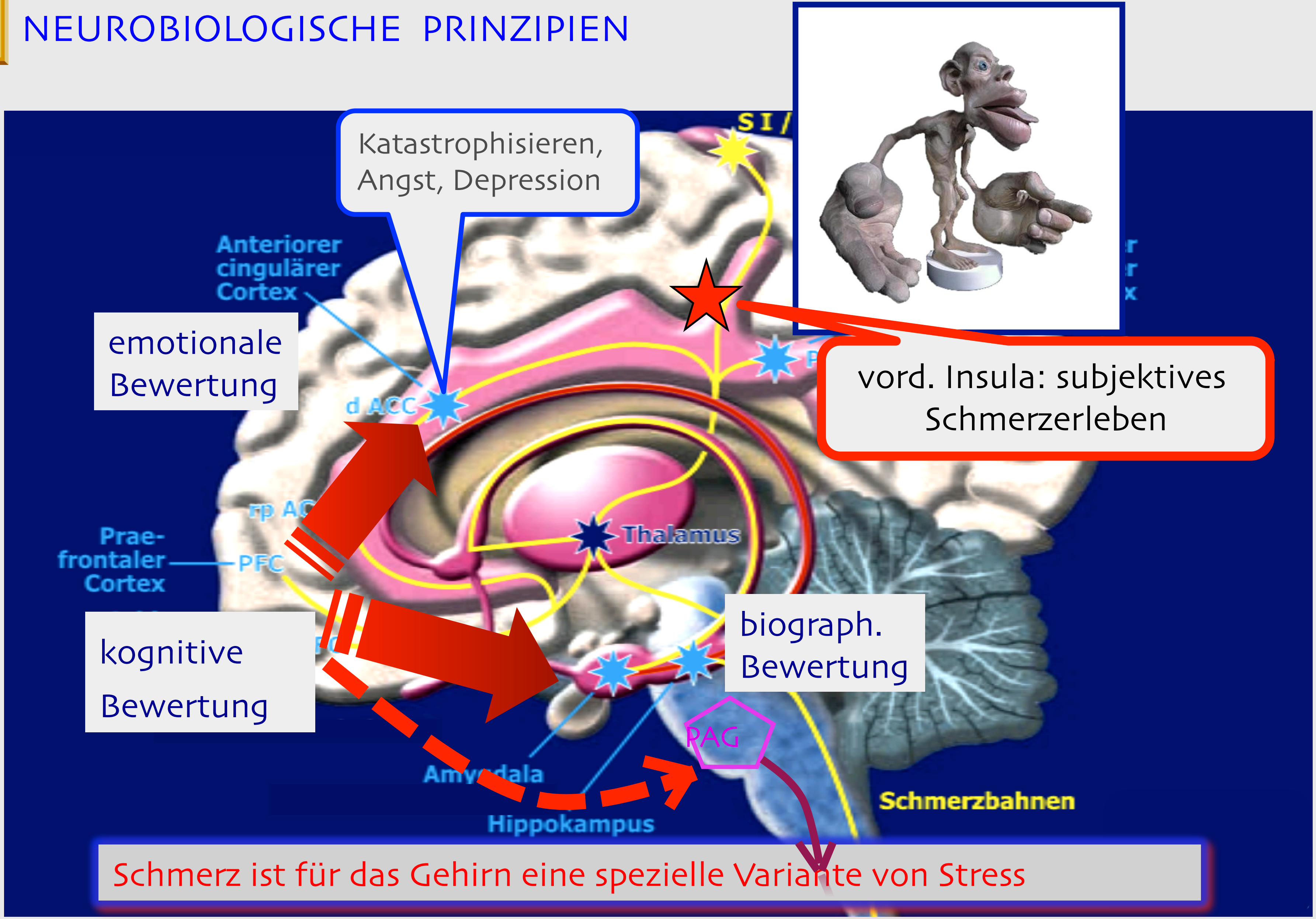


Periphere Nozizeption, freie Nervenendigungen	Die periphere Nozizeption kann durch Gewebezerfallsstoffe und Entzündungsmediatoren markant verstärkt werden, wobei *neurogene (!)* Substanzen (Substanz P und Calcium Gene related Peptide) diesen Prozess zusätzlich noch ankurbeln können! Der Nerv als «Feuermelder» wird damit quasi zum «Brandstifter». Ein weiterer Aspekt der peripheren Allodynie und Hyperalgesie beruht darin, dass üblicherweise auf Druckempfindung spezialisierte Nervenfasern (Aβ) bei entsprechender Stimulation auch zu «Schmerzüberleitern» werden können [1].



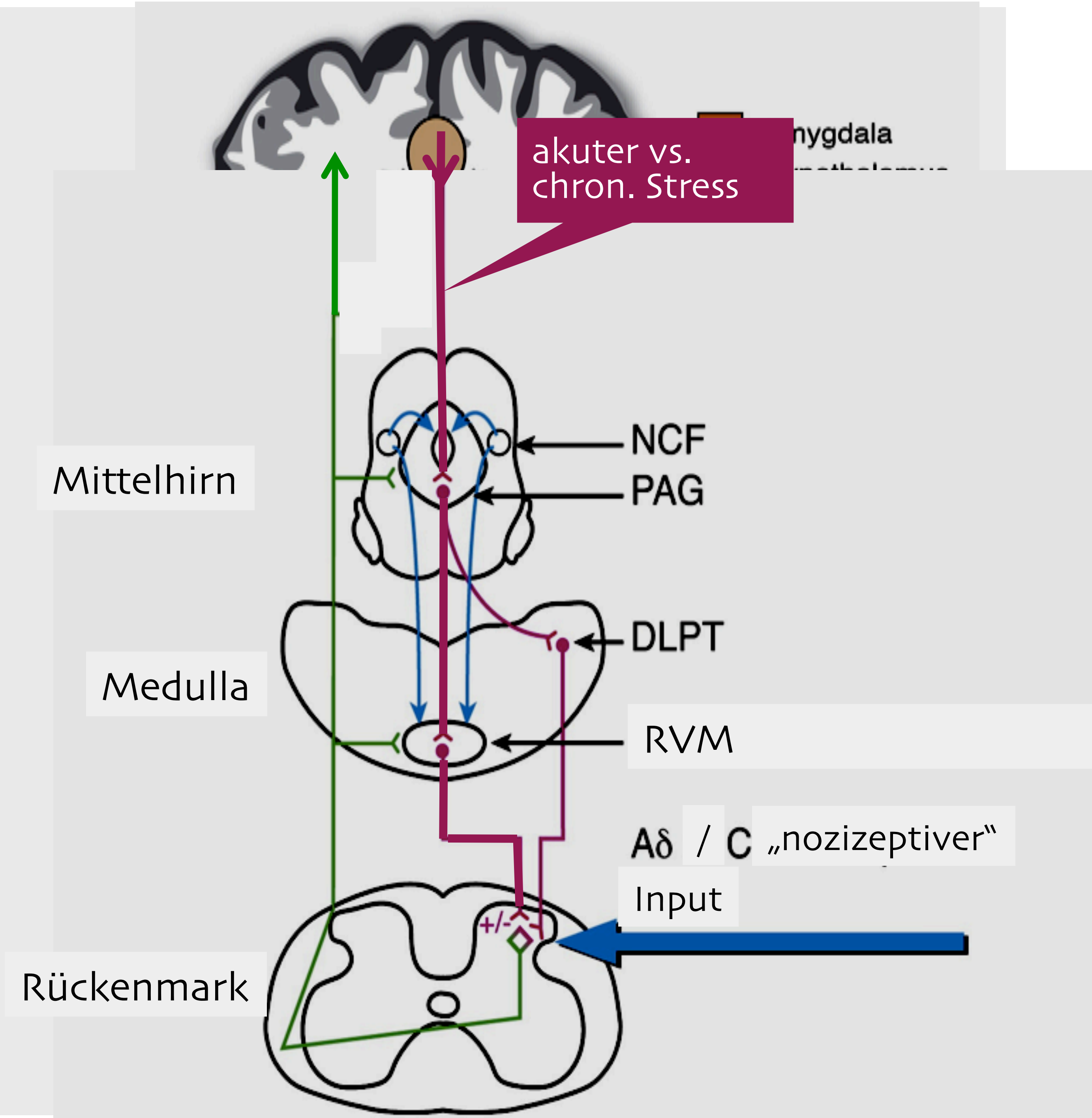
ZENTRALE SCHMERZ- UND STRESSVERARBEITUNG
NEUROBIOLOGISCHE PRINZIPIEN



e g l e @ k l i n i k - k i n z i g t a l . d e

deszendierend-hemmendes Schmerzsystem

(Tracey & Manthy 2007)



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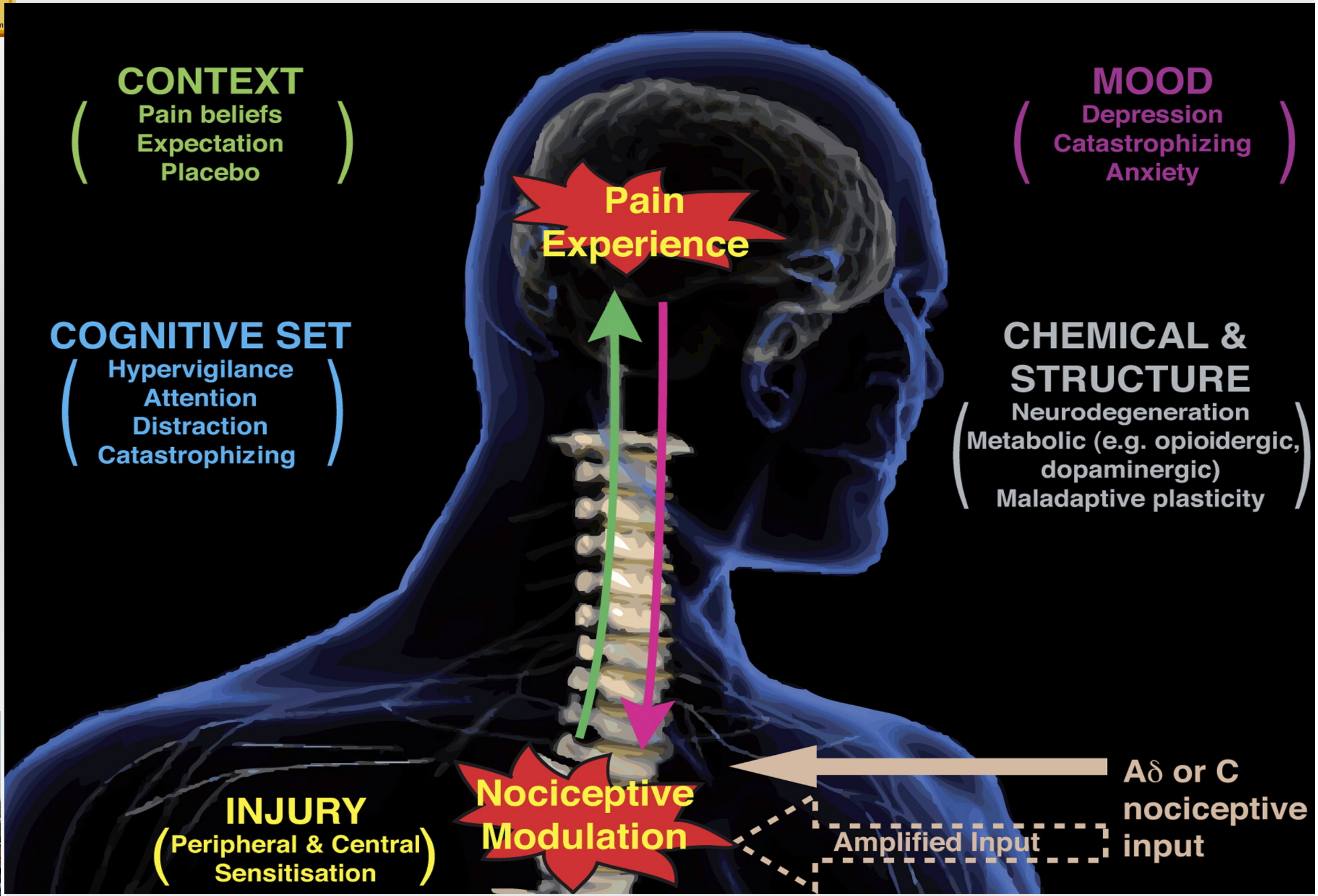

Empathy for Pain Involves the Affective but not Sensory Components of Pain

Tania Singer,[1*] Ben Seymour,[1] John O'Doherty,[1] Holger Kaube,[2] Raymond J. Dolan,[1] Chris D. Frith[1]

Our ability to have an experience of another's pain is characteristic of empathy. Using functional imaging, we assessed brain activity while volunteers experienced a painful stimulus and compared it to that elicited when they observed a signal indicating that their loved one—present in the same room—was receiving a similar pain stimulus. Bilateral anterior insula (AI), rostral anterior cingulate cortex (ACC), brainstem, and cerebellum were activated when subjects received pain and also by a signal that a loved one experienced pain. AI and ACC activation correlated with individual empathy scores. Activity in the posterior insula/secondary somatosensory cortex, the sensorimotor cortex (SI/MI), and the caudal ACC was specific to receiving pain. Thus, a neural response in AI and rostral ACC, activated in common for "self" and "other" conditions, suggests that the neural substrate for empathic experience does not involve the entire "pain matrix." We conclude that only that part of the pain network associated with its affective qualities, but not its sensory qualities, mediates empathy.

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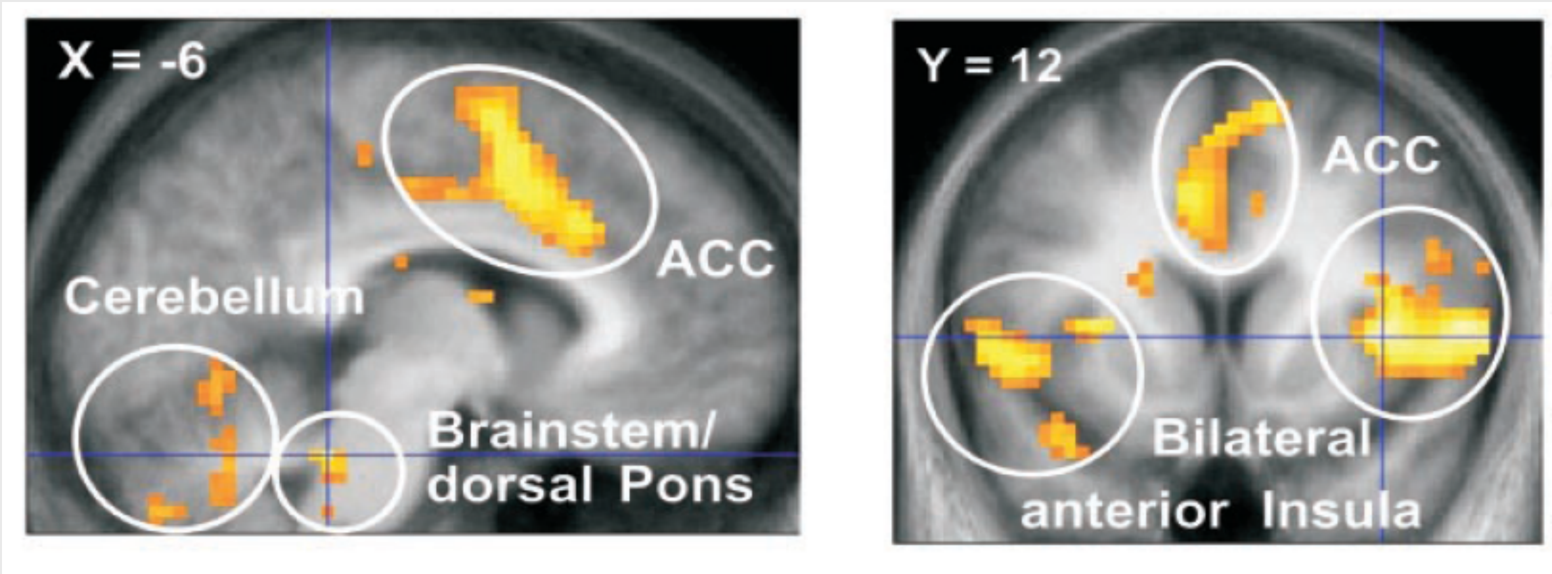

Aktivierung von vorderer Insula und vorderem rostralem Gyrus cinguli (ACC) korreliert mit individuellen **Empathie-Scores** („Beziehungsqualität").

Aktivierungen im Bereich der hinteren Insula, dem sekundären somato-sensorischen Cortex (SII), dem sensomotorischen Cortex (SI/MI) sowie dem caudalen ACC sind spezifisch für den **Schmerz**reiz.

Singer et al. Science 303, 2004

100 leading medicine germany 2009 www.leading-medicine-guide.com

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nature Vol 439|26 January 2006|doi:10.1038/nature04271

LETTERS

Empathic neural responses are modulated by the perceived fairness of others

Tania Singer[1,2], Ben Seymour[1], John P. O'Doherty[3], Klaas E. Stephan[1], Raymond J. Dolan[1] & Chris D. Frith[1]

The neural processes underlying empathy are a subject of intense interest within the social neurosciences[1–3]. However, very little is known about how brain empathic responses are modulated by the affective link between individuals. We show here that empathic responses are modulated by learned preferences, a result consistent with economic models of social preferences[4–7]. We engaged male and female volunteers in an economic game, in which two confederates played fairly or unfairly, and then measured brain activity with functional magnetic resonance imaging while these same volunteers observed the confederates receiving pain. Both sexes exhibited empathy-related activation in pain-related brain areas (fronto-insular and anterior cingulate cortices) towards fair players. However, these empathy-related responses were significantly reduced in males when observing an unfair person receiving pain. This effect was accompanied by increased activation in reward-related areas, correlated with an expressed desire for revenge. We conclude that in men (at least) empathic responses are shaped by valuation of other people's social behaviour, such that they empathize with fair opponents while favouring the physical punishment of unfair opponents, a finding that echoes recent evidence for altruistic punishment.

we expected that subjects would come to like fair players and dislike unfair players.

As Fig. 1b illustrates, subjects perceived the confederates as being fair and unfair according to their game-playing strategy. Post-scan behavioural ratings confirmed that both male and female subjects rated the fair player as being significantly more fair, more agreeable, more likeable and more attractive than the unfair player (range of scale +2 to −2; $P < 0.001$; Supplementary Table S1).

In the second part of the experiment we used functional magnetic resonance imaging (fMRI) to investigate whether the liking or disliking acquired during the preceding game modulated empathic responses for pain. One actor sat on each side of the scanner, enabling the scanned volunteer to observe the hands of the fair and unfair player as well as his/her own hand. Painful stimulation was applied through electrodes to the hands of all three participants. As shown in Fig. 1c, cues (coloured arrows) were presented in random order indicating whether she/he (self condition), the fair player (fair condition) or the unfair player (unfair condition) would get low stimulation (no pain condition) or high stimulation (pain condition).

We predicted that pain-related empathic responses in AI/FI and ACC would be elicited when observing a fair person in pain but that

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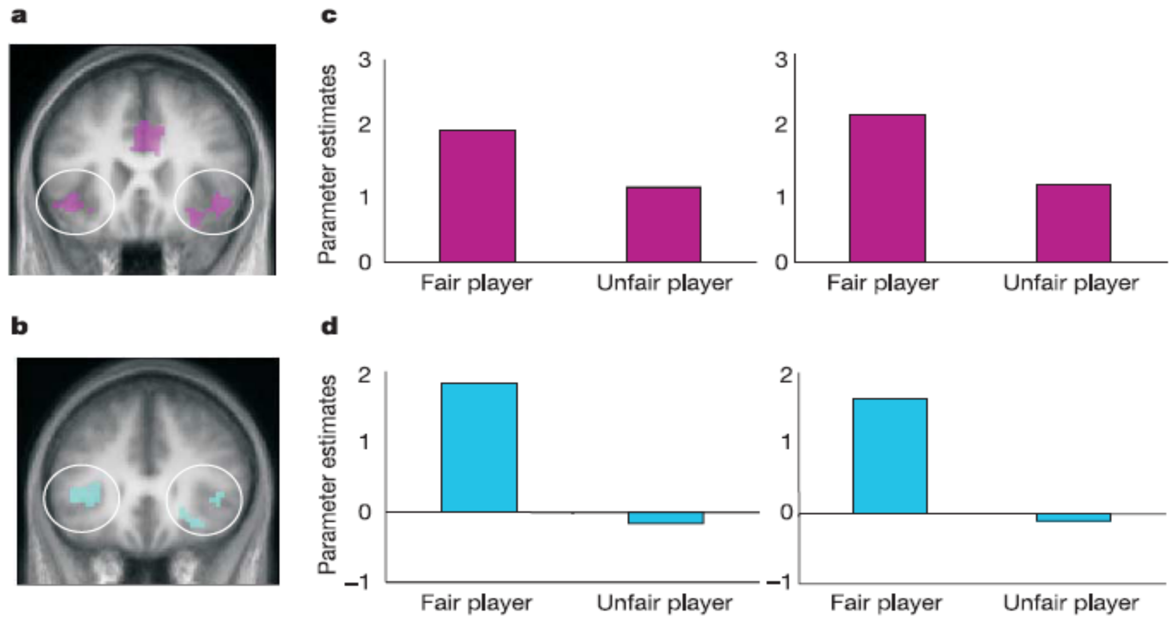
ACC
fronto-insular
SI und SII
Hirnstamm

ACC
fronto-insular
Hirnstamm

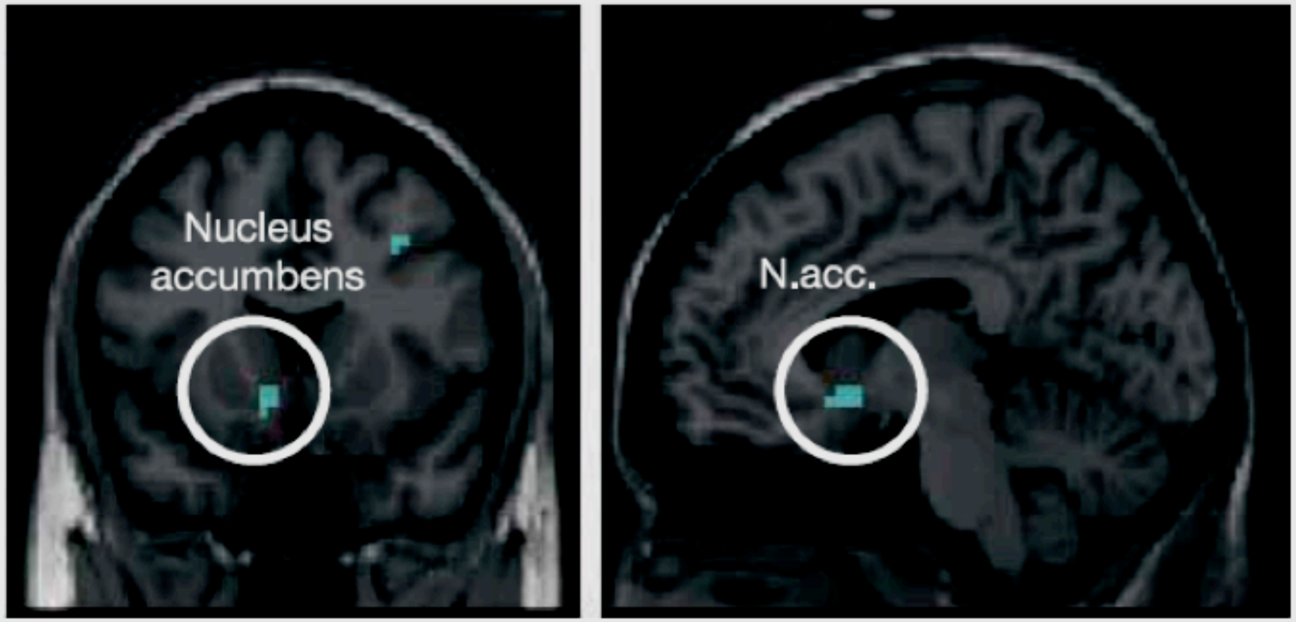


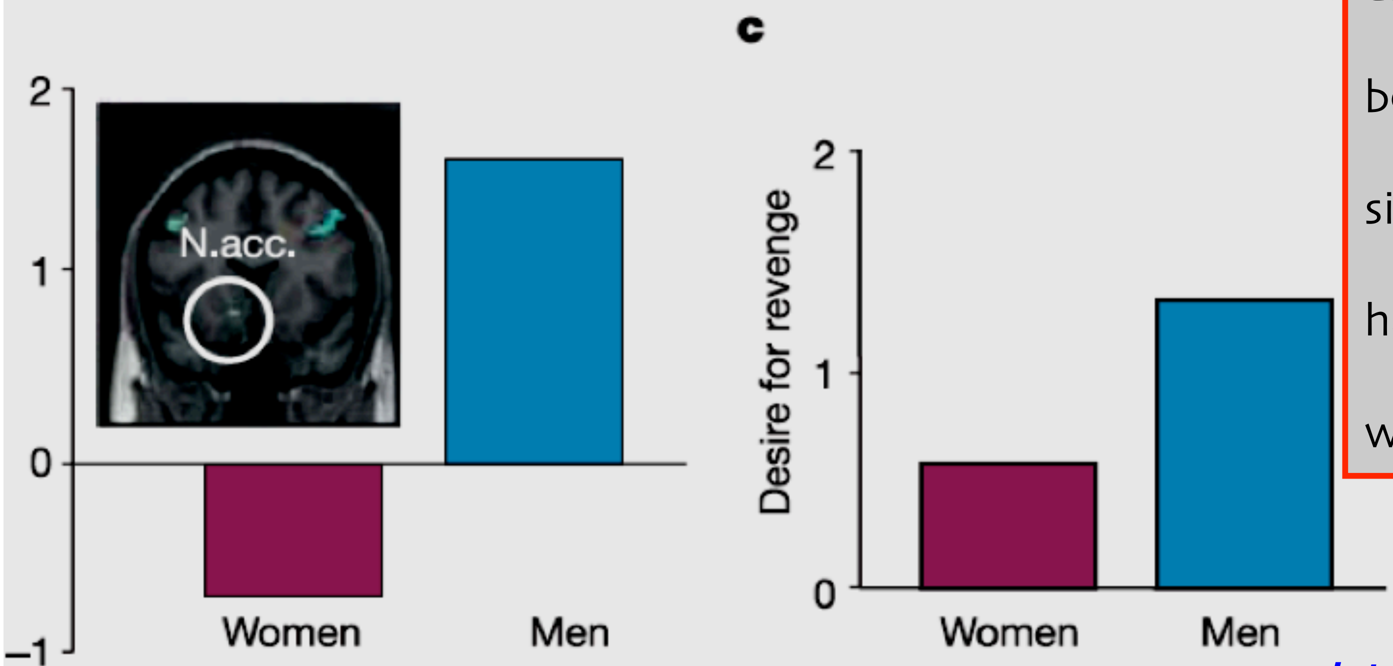
Frauen

Männer

Figure 2 | Pain-sensitive activation networks to the sight of fair and unfair players in pain. a, **b**, Conjunction analysis between the contrasts pain–no pain in the context of self and the fair condition at $P < 0.001$ for women (pink, **a**) and men (blue, **b**). Increased pain-related activation (asterisk indicates whole-brain corrected) for women in ACC* [9, 18, 27], left FI* [−42, 15, −3], right FI* [30, 18, −18], left SII* [−60, −30, 18], right SII* [63, −30, 24] and brainstem* [3, −18, −18]; for men in left FI* [−33, 33, 3] right FI [42, 33, 3] and brainstem [3, −33, −30]. **c**, **d**, Average activation (parameter estimates) in peak voxels of left and right FI (left and right panels, respectively) for the painful–non painful trials in fair and unfair conditions for women (**c**) and men (**d**).

Singer et al, Nature, 439, 2006





Im Unterschied zu Frauen wird bei Männern das Belohnungs-system (Ncl. accumbens) aktiviert, wenn sie beobachten, dass Anderen, die sich zuvor unfair verhalten haben, Schmerz zugefügt wird.

Ist Schadenfreude männlich?

Singer et al, Nature, 439, 2006

Christine A. Walsh
Ellen Jamieson
Harriet MacMillan
Michael Boyle

Child Abuse and Chronic Pain in a Community Survey of Women

Journal of Interpersonal Violence
Volume 22 Number 12
December 2007 1536-1554

This study examined the relationship between a self-reported history of child physical and sexual abuse and chronic pain among women (N = 3381) in a provincewide community sample. Chronic pain was significantly associated with physical abuse, education, and age of the respondents and was unrelated to child sexual abuse alone or in combination with physical abuse, mental disorder (anxiety, depression, or substance abuse), or low income. Number of health problems and mental health disorders did not mediate the relationship between physical abuse and chronic pain. Despite considerable evidence from the clini-

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Childhood adversities in patients with fibromyalgia and somatoform pain disorder

Katrin Imbierowicz[a], Ulrich T. Egle[b,*]

European Journal of Pain 7 (2003) 113–119

ACE-score

	FM ($n=38$)		SOM ($n=71$)		CG ($n=44$)	
	M	SD	*M*	SD	*M*	SD
ACE score	375.5	245.7	342.7	242.9	202.8	183.4

[a] ANCOVA.

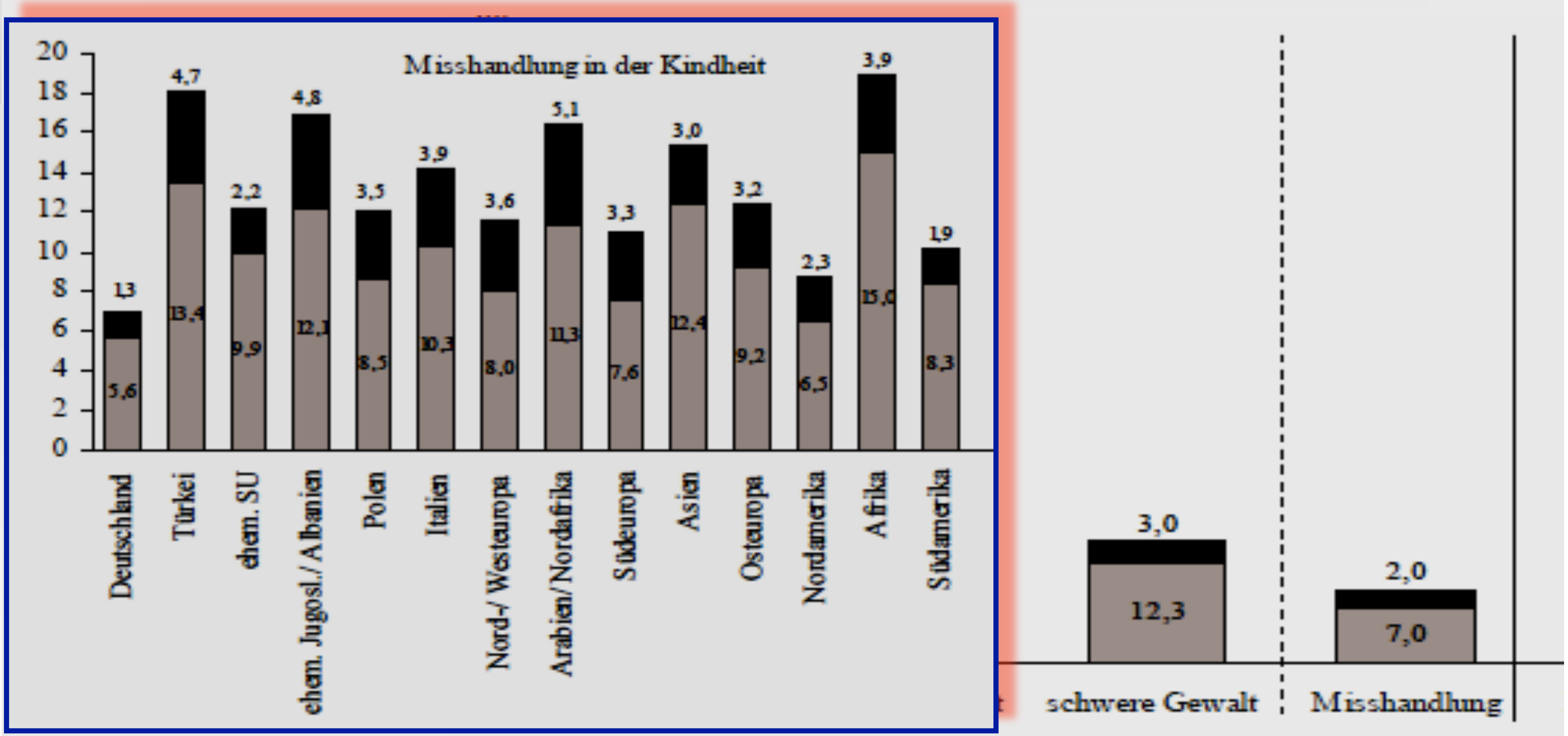
FM vs. SOM		FM vs. CG	
F[a]	*p*[a]	*F*[a]	*p*[a]
0.09	n.s.	8.50	<0.005

körperliche Misshandlung > sexueller Missbrauch

Jugendliche in Deutschland als Opfer und Täter von Gewalt

Erster Forschungsbericht zum gemeinsamen Forschungsprojekt des Bundesministeriums des Innern und des KFN

Dirk Baier, Christian Pfeiffer, Julia Simonson, Susann Rabold



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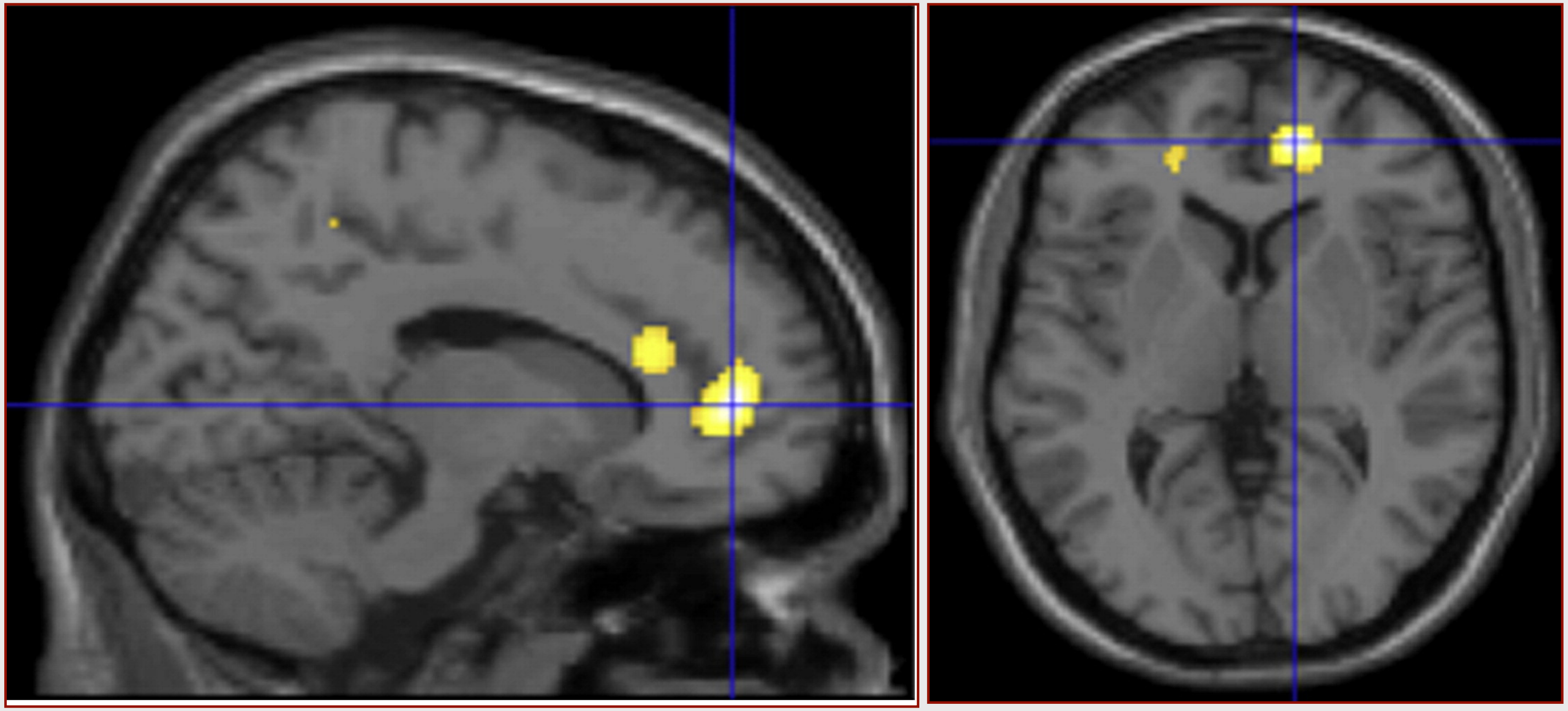
Reduced prefrontal cortical gray matter volume in young adults exposed to harsh corporal punishment

A. Tomoda, H. Suzuki, K. Rabi, Y. Sheu, A. Polcari, & M.H. Teicher

Dep. of Psychiatry, Harvard Medical School, Boston, USA

NeuroImage 47, Suppl. 2 August 2009, T66-T71



Significant differences between corporal punishment (CP) subjects and controls. Significantly lower gray matter densities in CP subjects were measured in the right dorsolateral prefrontal cortex (BA10) and the ACC (BA24)

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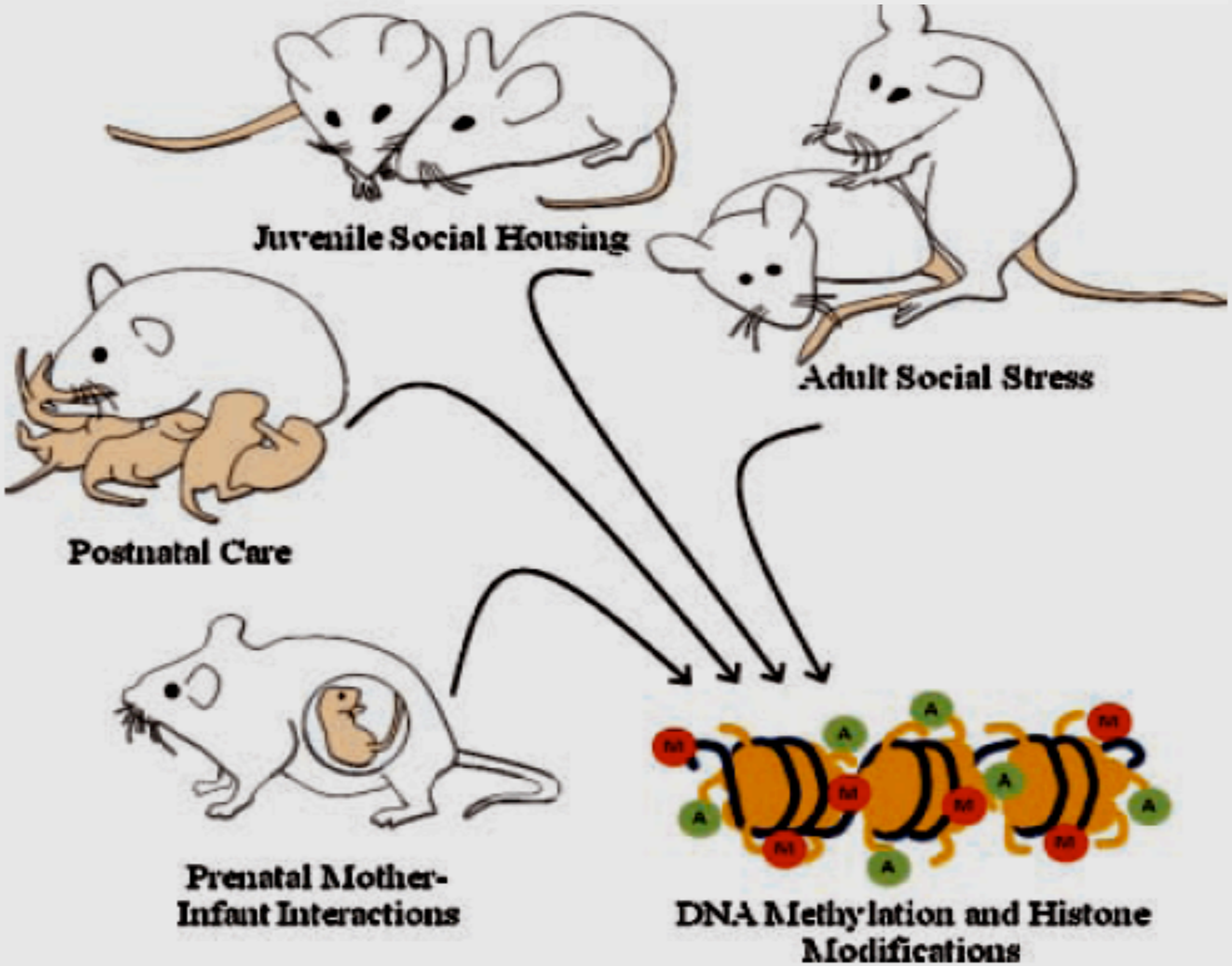
Frances A. Champagne

Developmental Psychobiology 2010

Epigenetic Influence of Social Experiences Across the Lifespan



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BINDUNG UND SPÄTERE STRESSRESISTENZ

Weaver et al: *Nat Neuroscience 7: 847-54, 2004*

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Frühe Bindung bewirkt

- über epigenetische Veränderungen

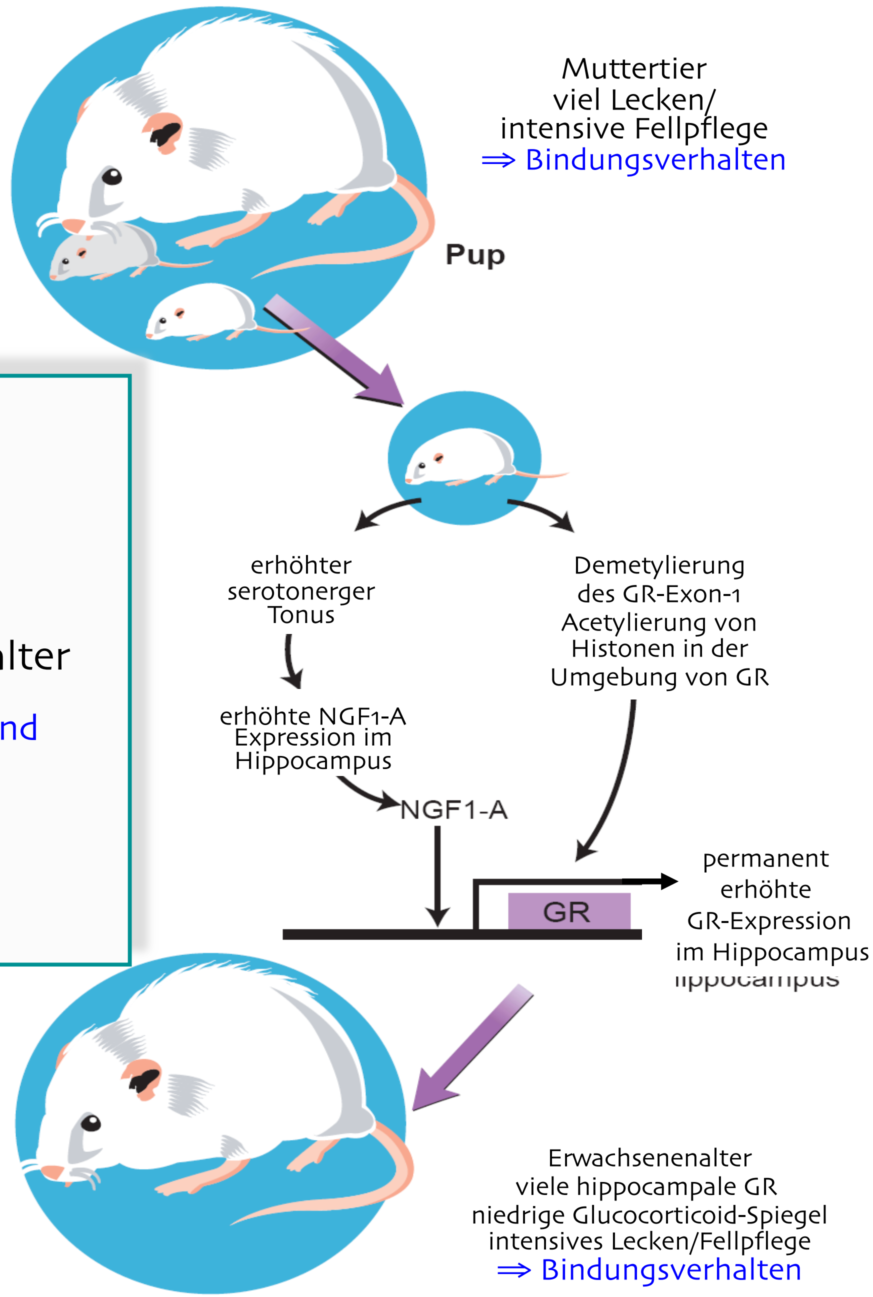
  (Ablesbarkeit des GR-Genabschnitts)

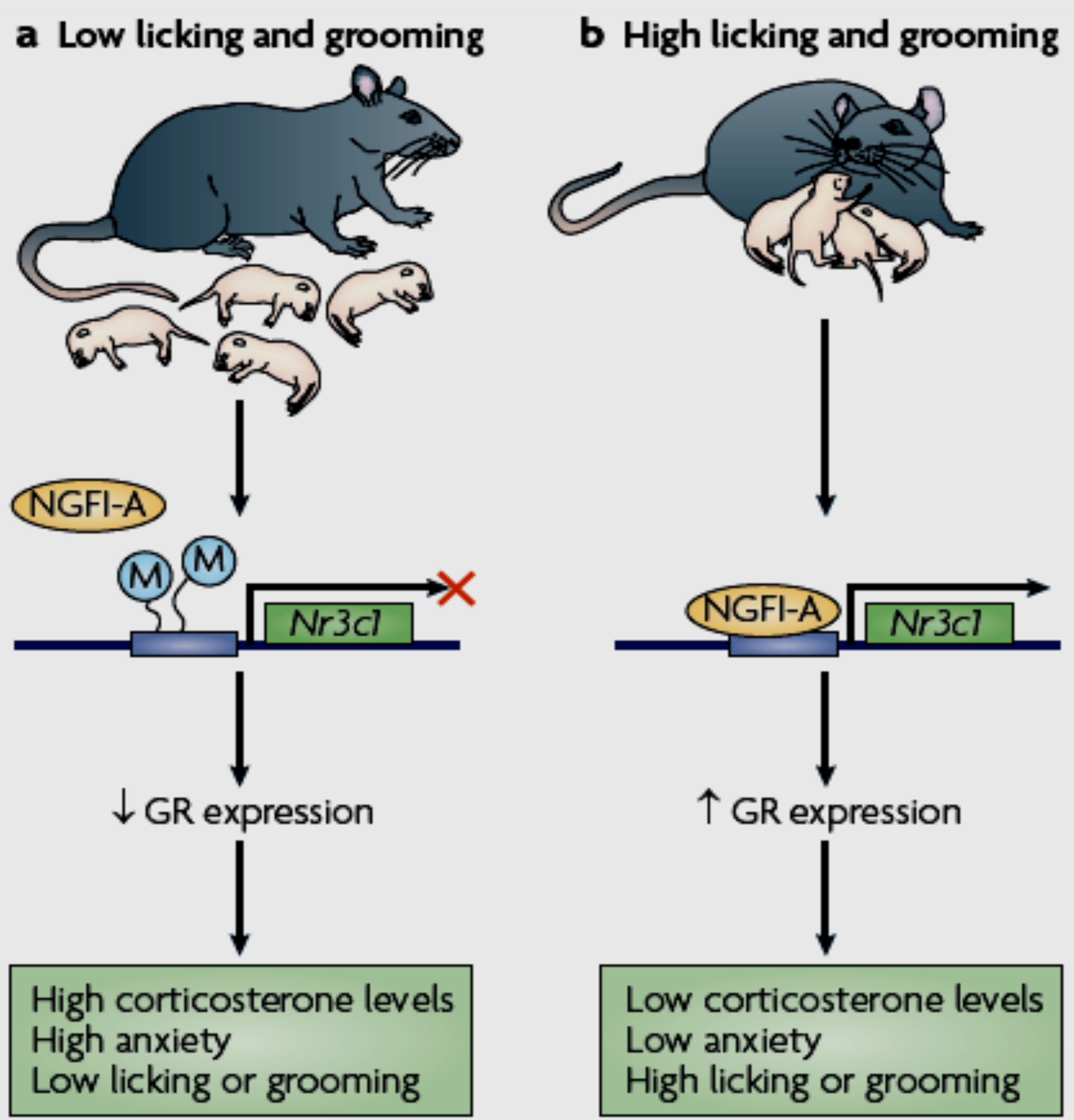
- eine erhöhte Stressresistenz im Erwachsenenalter

  (durch erhöhte Exprimierung von GR-Rezeptoren und niedrige Glucocorticoid-Spiegel)

- und transgenerationale Weitergabe

  (über mütterliches Bindungsverhalten >> Oxytocin)





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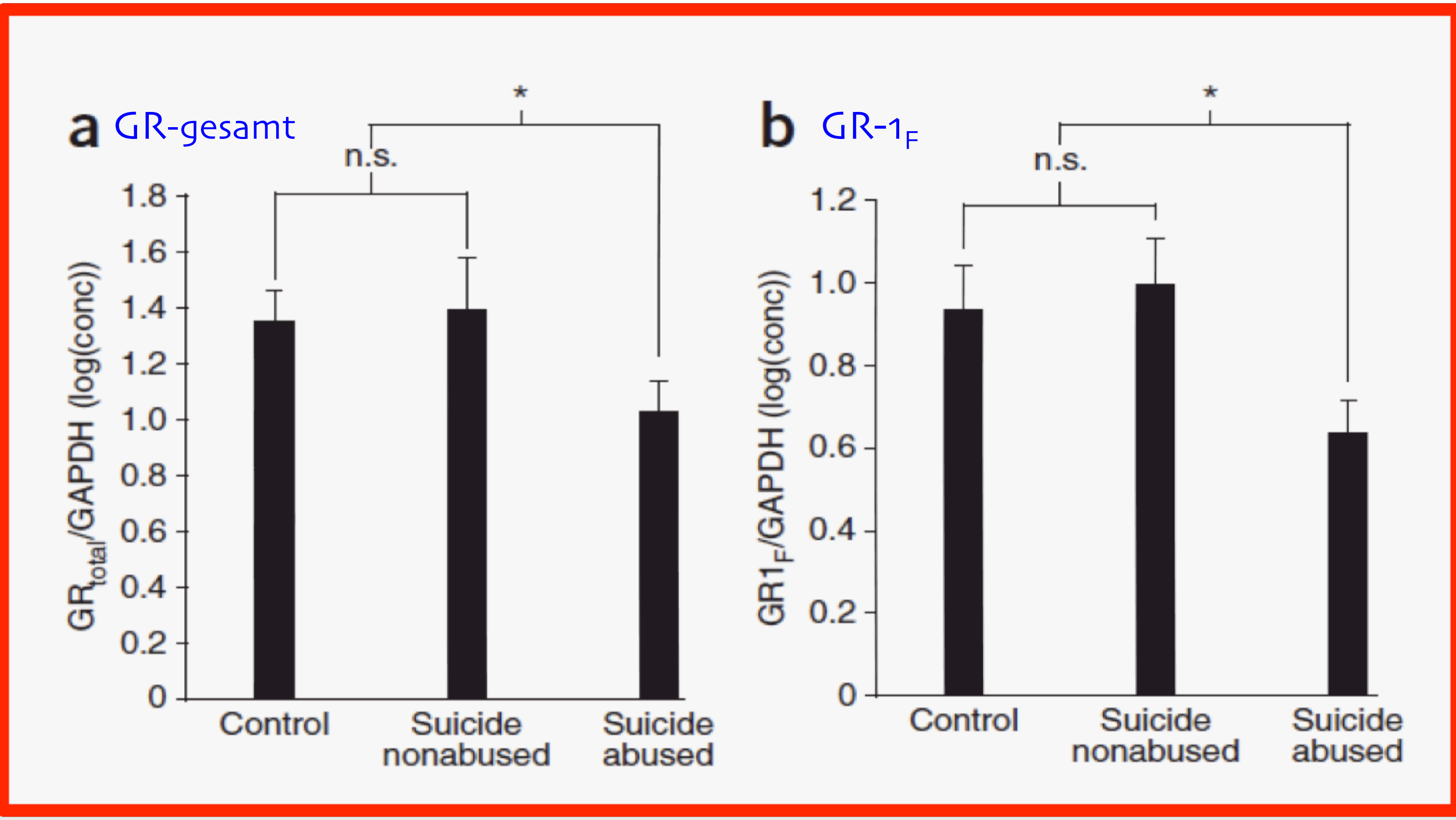
Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse



How adversity gets under the skin

Steven E Hyman

Rat models implicate epigenetic regulation of hippocampal glucocorticoid receptor expression in mediating the effects of early life experience on adult behavior. A report now suggests that the same mechanism might also be at work in humans.

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Antistress Pattern Induced by Oxytocin

Kerstin Uvnäs-Moberg

Repeated oxytocin injections cause lowered blood pressure, decreased cortisol levels, increased withdrawal latency, increased release of vagally controlled gastrointestinal hormones, and increased weight gain. Together, these effects form an antistress pattern. Nonnoxious sensory stimuli release oxytocin and induce an effect spectrum similar to the one caused by oxytocin injections.

News Physiol. Sci. • Volume 13 • February 1998

Oxytocin-induced attachment and health-promoting or antistress effects by social interaction

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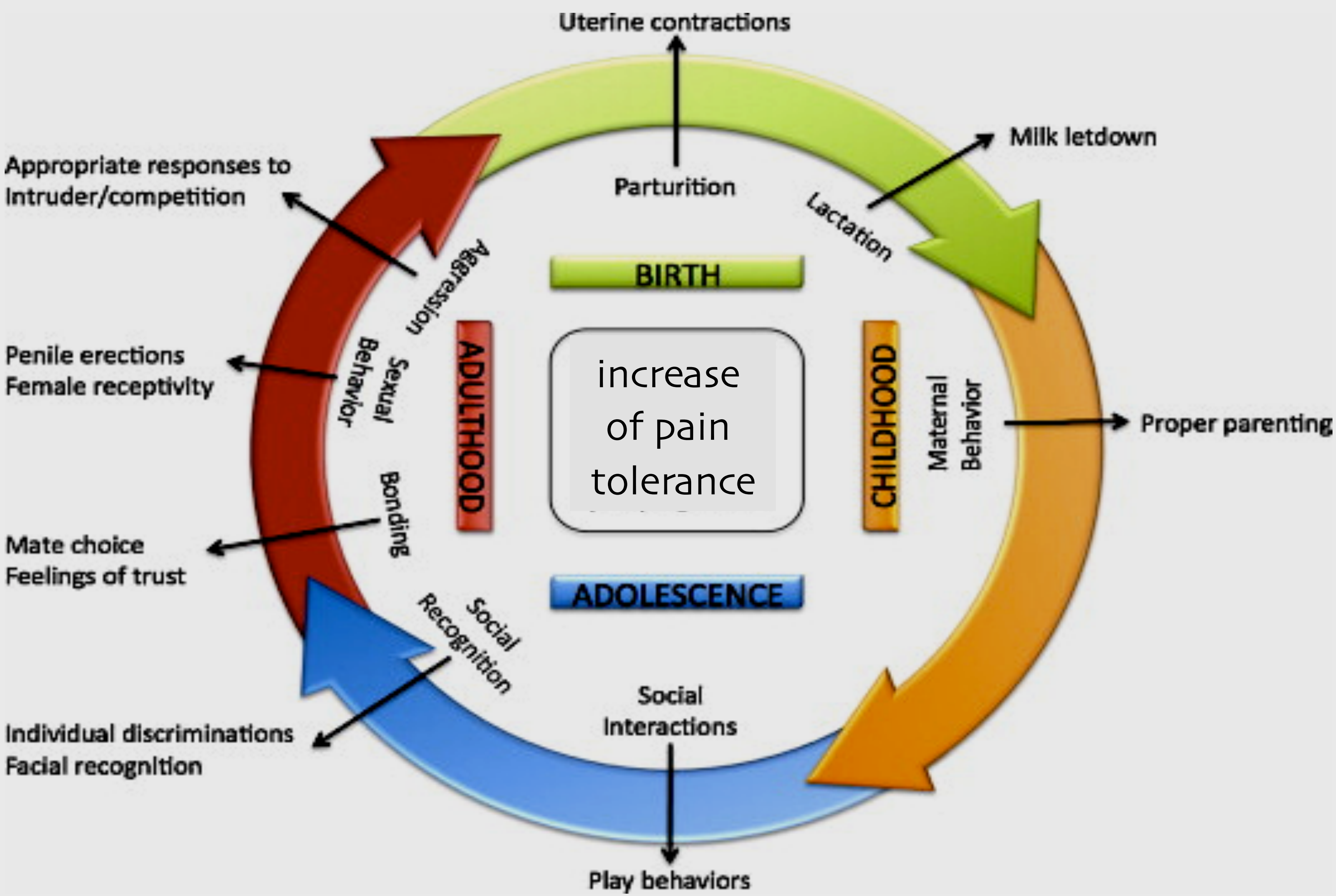
LEBENSLANGE FUNKTIONEN VON OXYTOCIN

Lee et al 2009, Nat Neuroscience Rev



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CHRONISCHER SCHMERZ UND UNSICHERES BINDUNGSVERHALTEN

- zeigen häufiger emotions- (u.a. Katastrophisieren) und seltener problemzentriertes Coping (Mikulincer & Florian 1998)
- erleben Schmerz als bedrohlicher und fühlen sich schneller im Umgang damit überfordert (Meridith et al 2005)
- berichten stärkere Schmerzintensität und Beeinträchtigung (McWilliams et al 2000)
- berichten stärkere Beeinträchtigung bei Migräne (Rossi et al 2005)
- berichten mehr körperliche Beschwerden (Schmidt et al 2002)
- schmerzbezogen mehr Angst, Depression und Katastrophisieren (Ciechanowski et al 2005, Meridith et al 2005, 2006, 2007)

>> alle Parameter auch bei im Labor induzierten Schmerzen ausgeprägter

(MacDonald & Kingsbury 2006, McWilliams & Asmundson 2007, Meridith et al 2006)

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Association of headache with childhood adversity and mental disorder: cross-national study

Sing Lee, Adley Tsang, Michael Von Korff, Ron de Graaf, Corina Benjet, Josep Maria Haro, Matthias Angermeyer, Koen Demyttenaere, Giovanni de Girolamo, Isabelle Gasquet, Kathleen Merikangas, José Posada-Villa, Tadashi Takeshima and Ronald C. Kessler

The British Journal of Psychiatry (2009) 194, 111–116.

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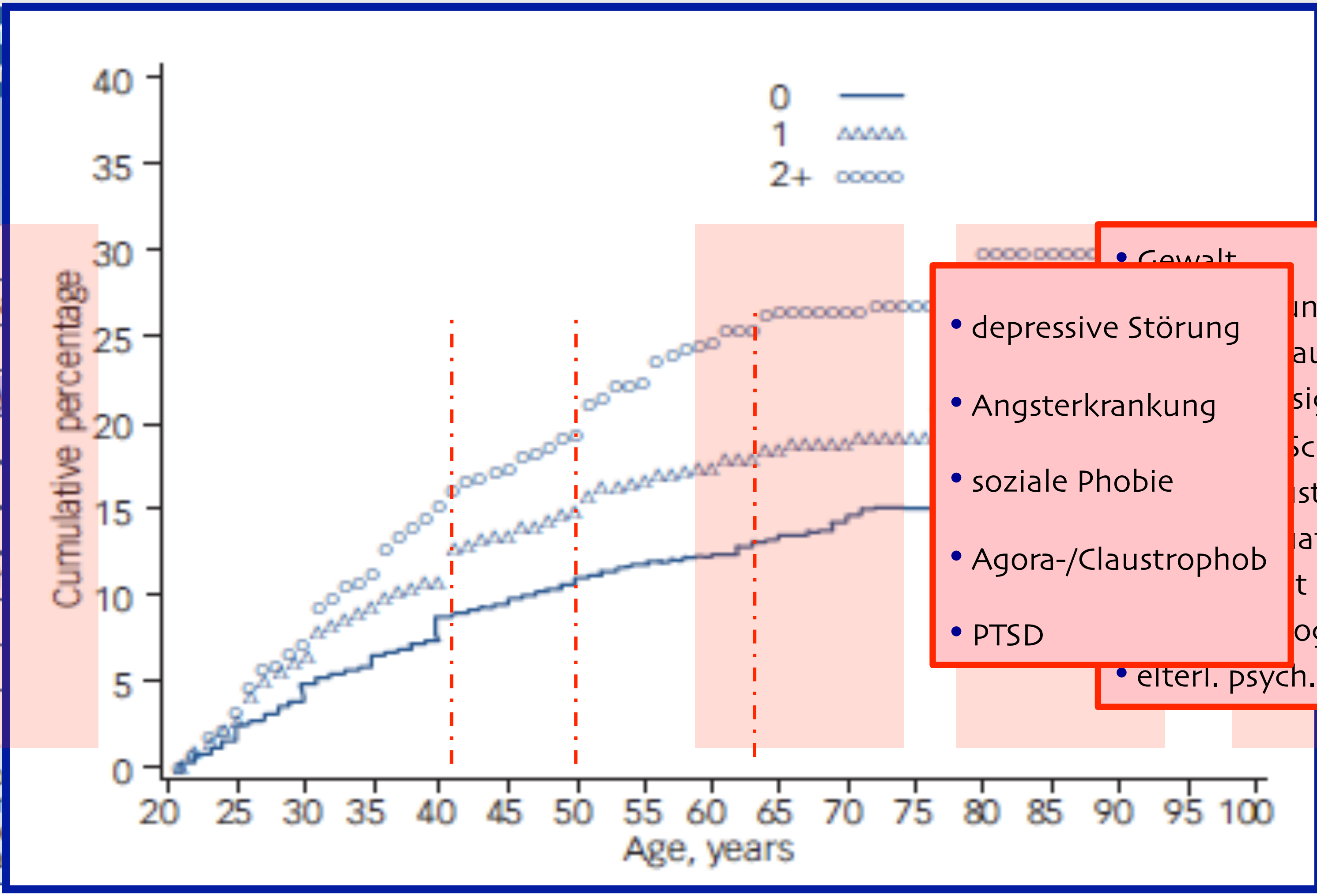
Table 1 … and ear… …ties

Country … …et of any …n/anxiety …ers,[b] %

Belgium
Colombi…
France
Germany
Italy
Japan
Mexico
The Neth…
Spain
US
Total

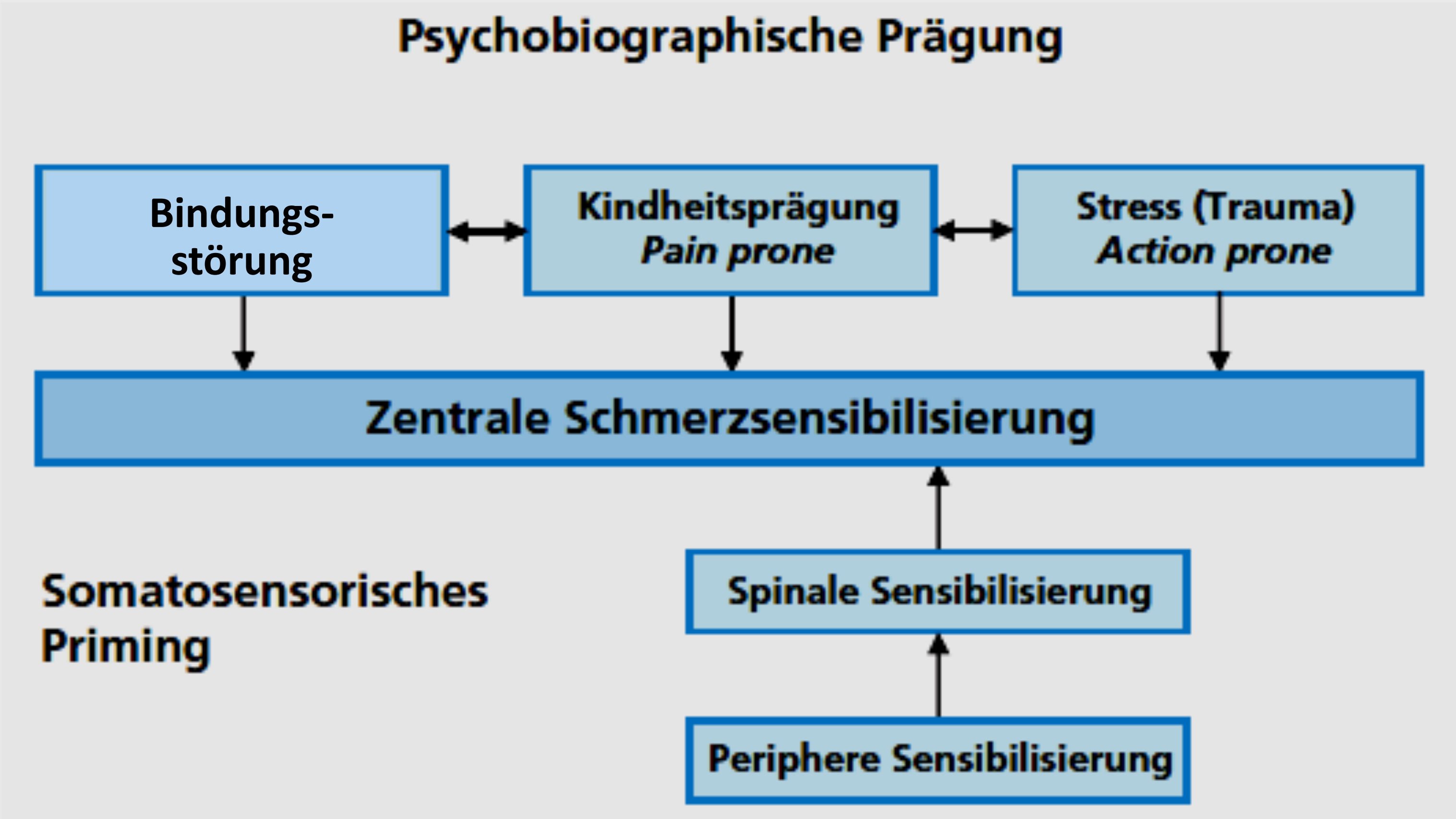
a. Childho… Violence i… b. Assess… and agora… …adversity, …anic disorder



- depressive Störung
- Angsterkrankung
- soziale Phobie
- Agora-/Claustrophob
- PTSD

- Gewalt
- …ung
- …auch
- …sigung
- …scheidung
- …st
- …ation
- …t
- …ogen
- elterl. psych. Erkr.

URSACHEN ZENTRALER HYPERALGESIE



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[1]N. Egloff, [2]U.T. Egle, [1]R. von Känel

Therapie zentralisierter Schmerzstörungen

Praxis 2009; 98: 271–283

SCHMERZANAMNESE

- Schmerzdauer
- Affektive Verfassung (Depression, Angst, Katastrophisieren)
- Biographische Schmerzerfahrungen (OP, Gewalterfahrung)
- Kognitive Bewertung (Schmerzfocusierung)
- anhaltend belastete Lebenssituation

  (Pflegesituation, alkoholabhängiger Partner, drogen-

  abhängiger Sohn, Arbeitsplatz- oder finanz. Probleme)
- Bindungstypologie

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VIELEN DANK FÜR IHRE AUFMERKSAMKEIT