

# ‘Ontwikkelingsneurowetenschappen’ Impact van trauma & psychopathologie Wat kan het betekenen voor de psychotherapeut?

---

Prof. Peter Adriaenssens  
Kinder- en Jeugdpsychiatrie UZ Leuven  
Vertrouwenscentrum Kindermishandeling Vlaams-Brabant



This is Anna at age  
one and a half

What happened?



This is Anna years  
later – in a mental  
institution

Anna  
Caroline  
Jennings  
1960 - 1992

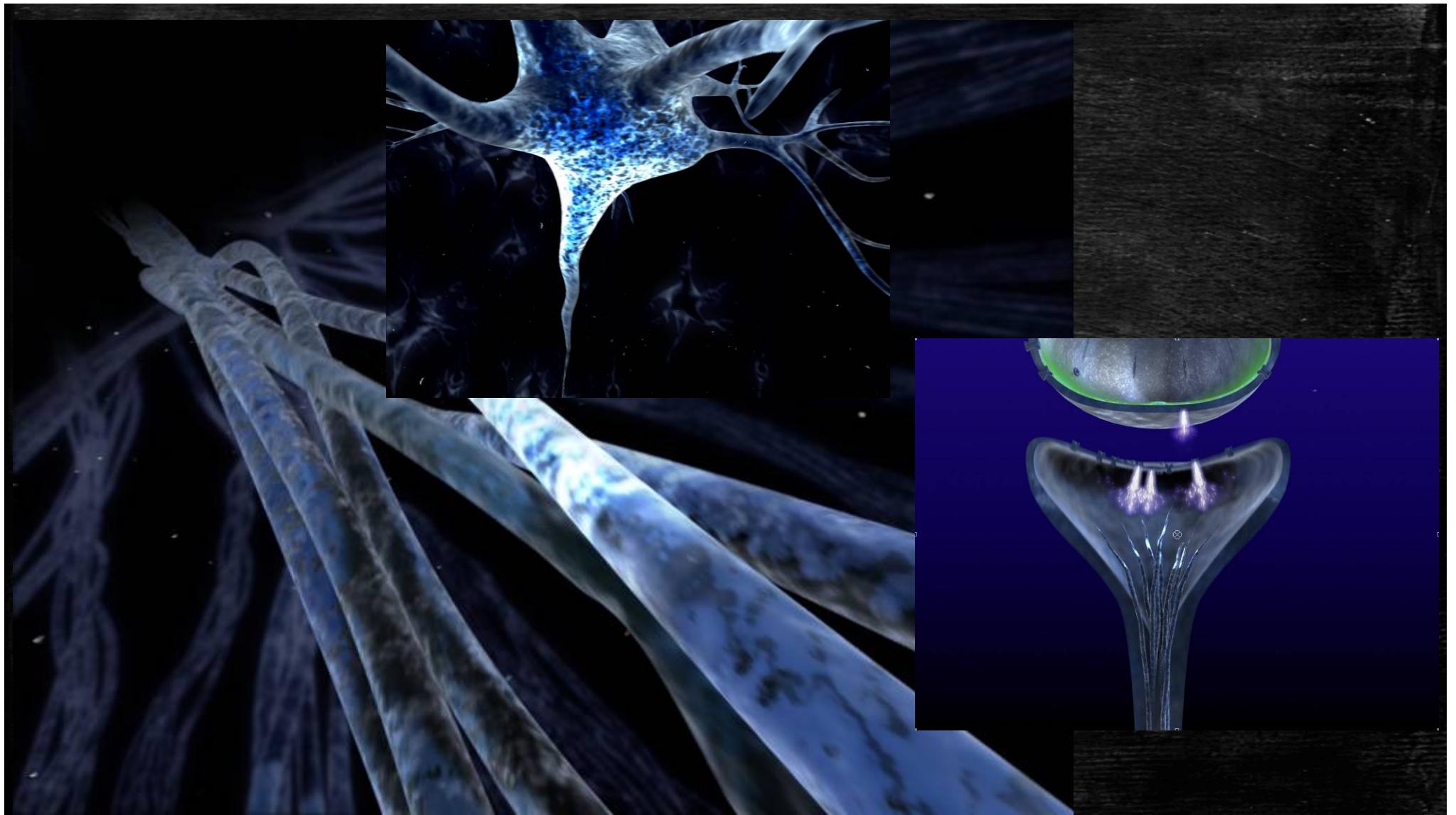


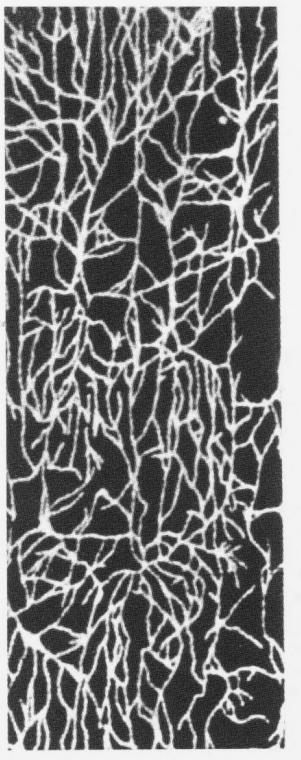
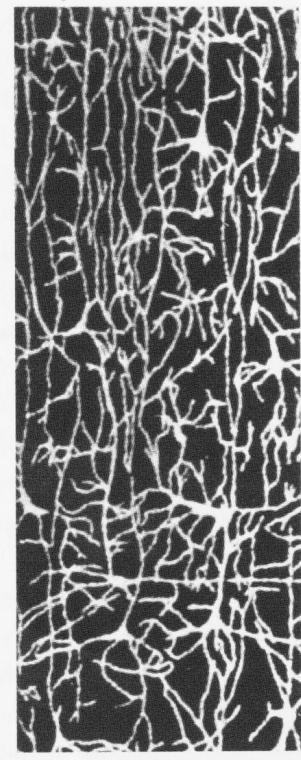
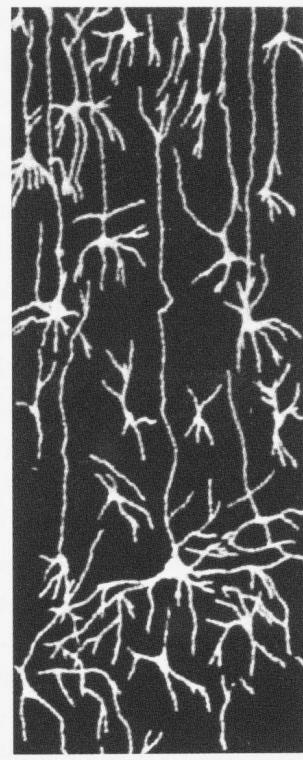
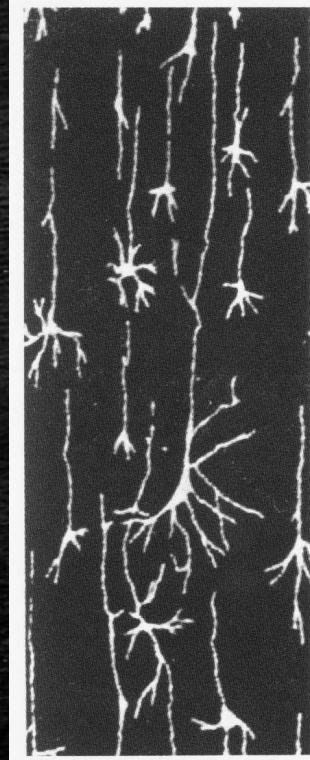
# **The “ACE” Study (Felliti) & Unaddressed Childhood Trauma**

**Presented by Ann Jennings Ph.D.**

**Geweld**  
**blijft een oorzaak van mentale stoornissen**  
**die absoluut te voorkomen is**

---





**vanuit een neurobiologisch perspectief is het beeld van een ‘mens uit één stuk’ een misknelling van de veelzijdigheid van ons normaal, zich aanpassend, steeds weer veranderend en evoluerend gezonde zelf.**

---

Daniel Siegel

**Green et al 2010**

---

- De helft van alle psychische stoornissen die aanvangen in de kindertijd
- Een derde van zij die op volwassen leeftijd starten

# IMPACT

---

psychotrauma

gehechtheid

neurobiologie

epigenetica

## CO-OCCURRENCE IS COMMON

---

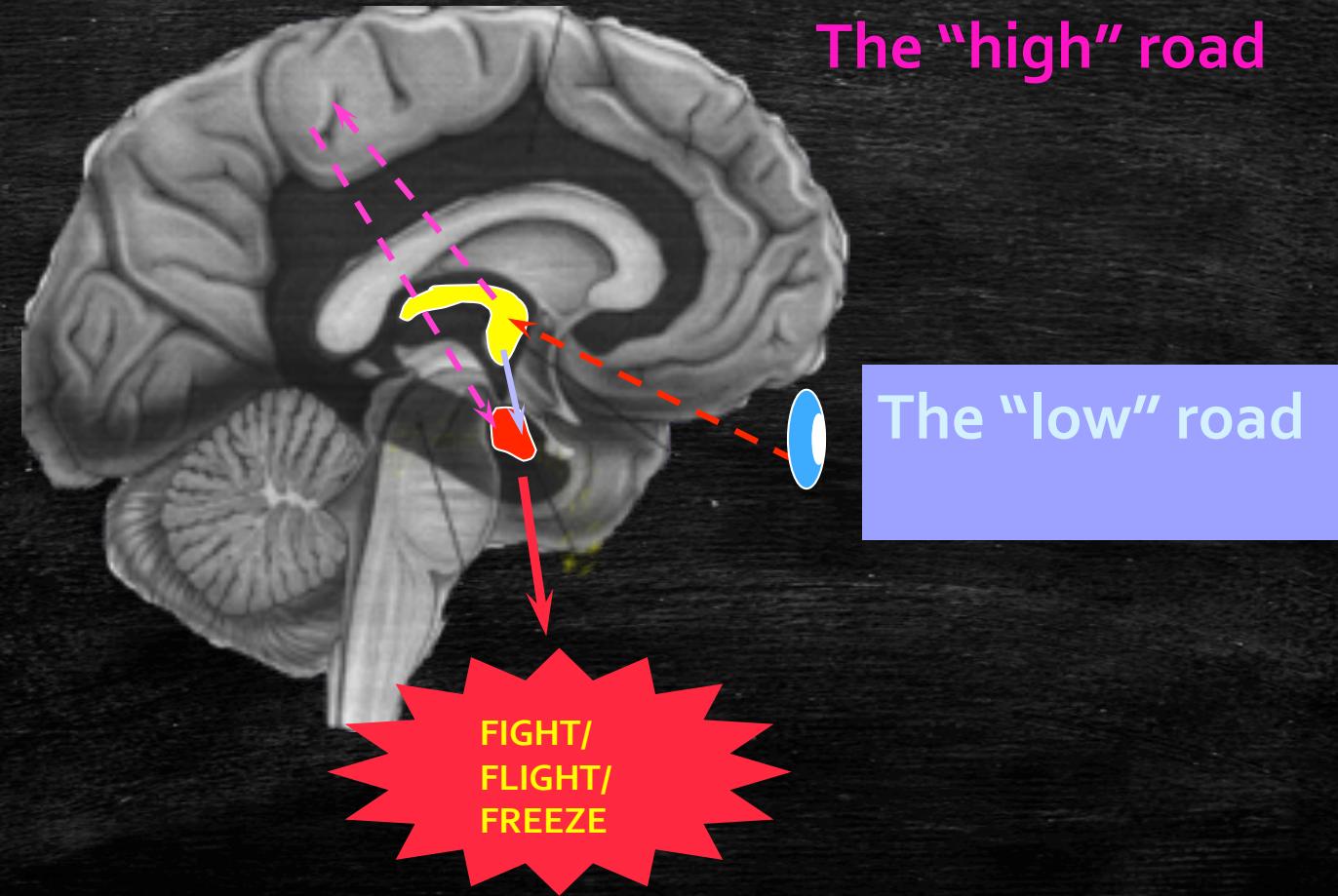
- 8600 →
  - 2/3 AT LEAST 1 ACE
  - 87% AT LEAST 2
  - 52% AT LEAST 3
- MEDIAN 2.8

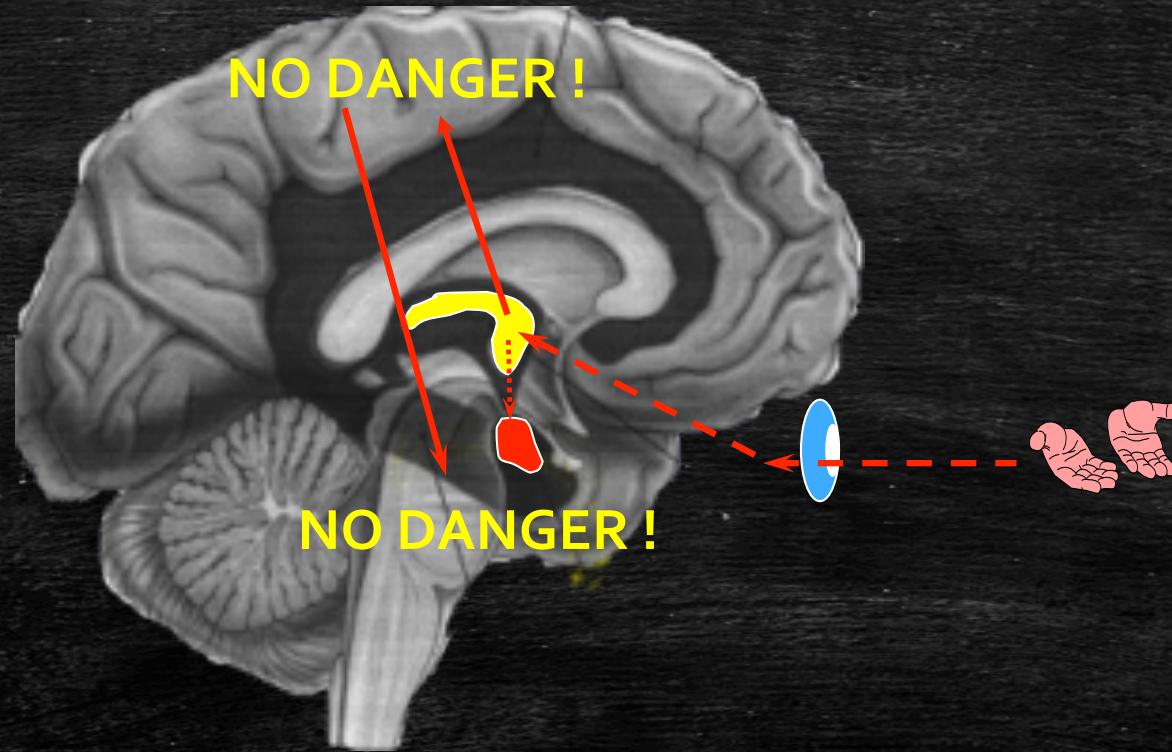
Dong, 2004

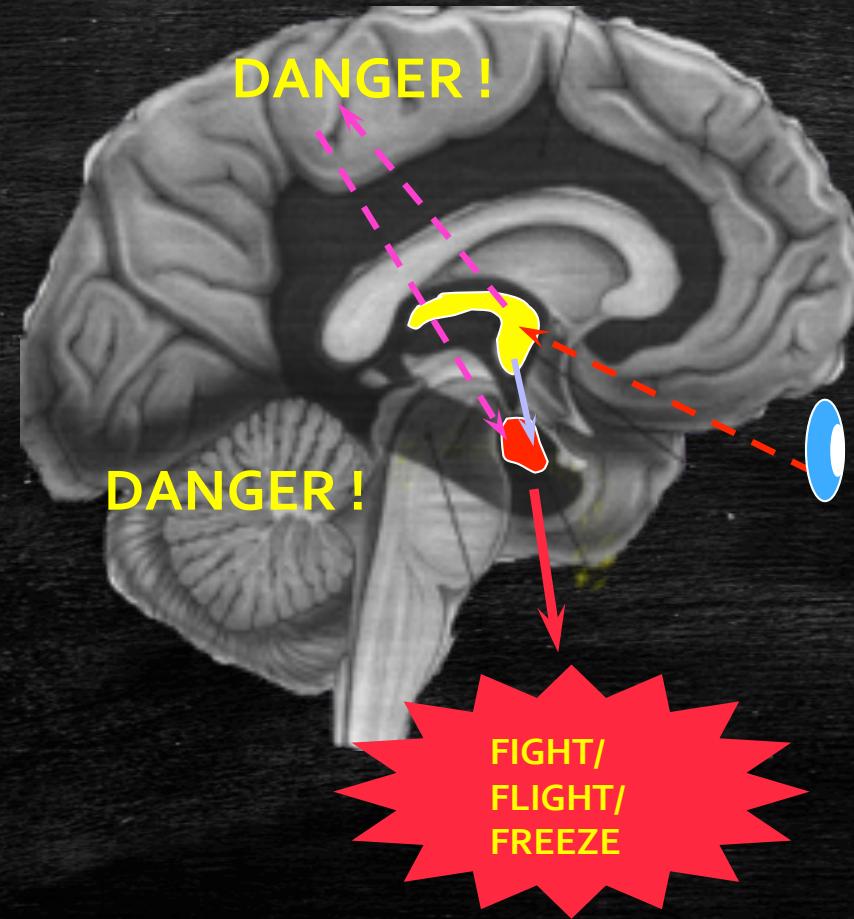
## Famularo ea

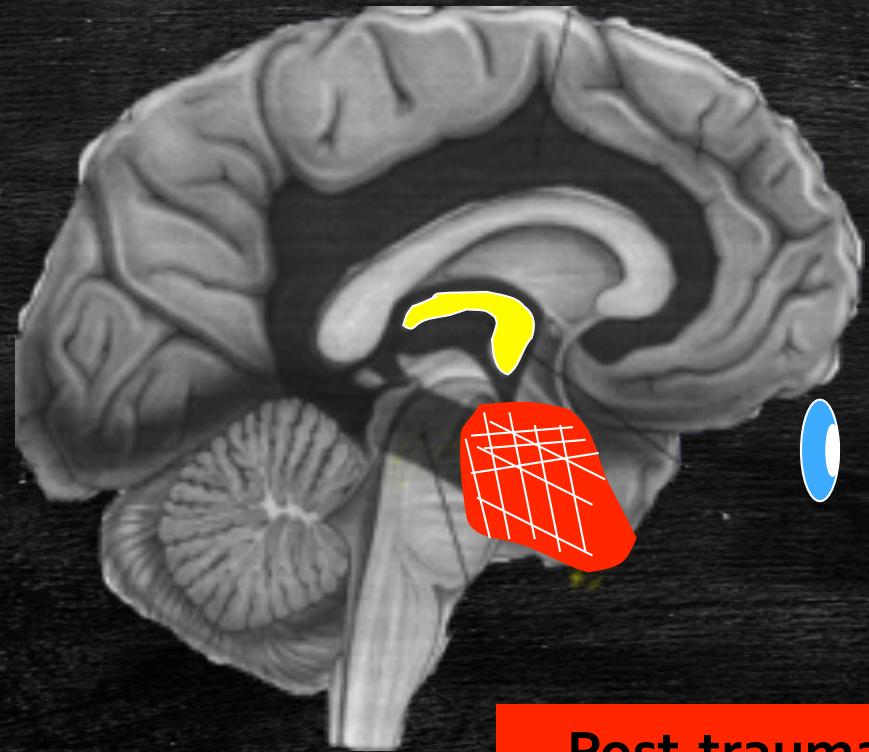
---

- Na interventie: 40-60% PTSS in eerste maanden
- 'From our sample of 52 PTSD children re-examined after 2 years, 17 (32.7%) retained the full PTSD diagnosis, while 67.3% did not meet criteria'.



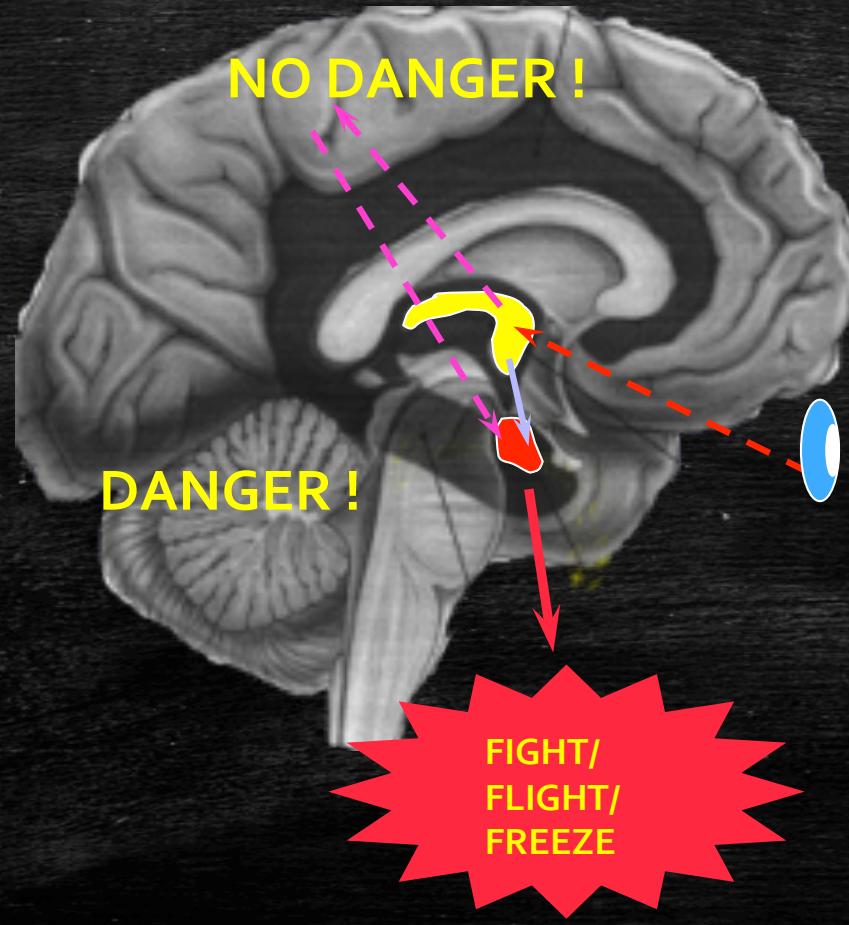


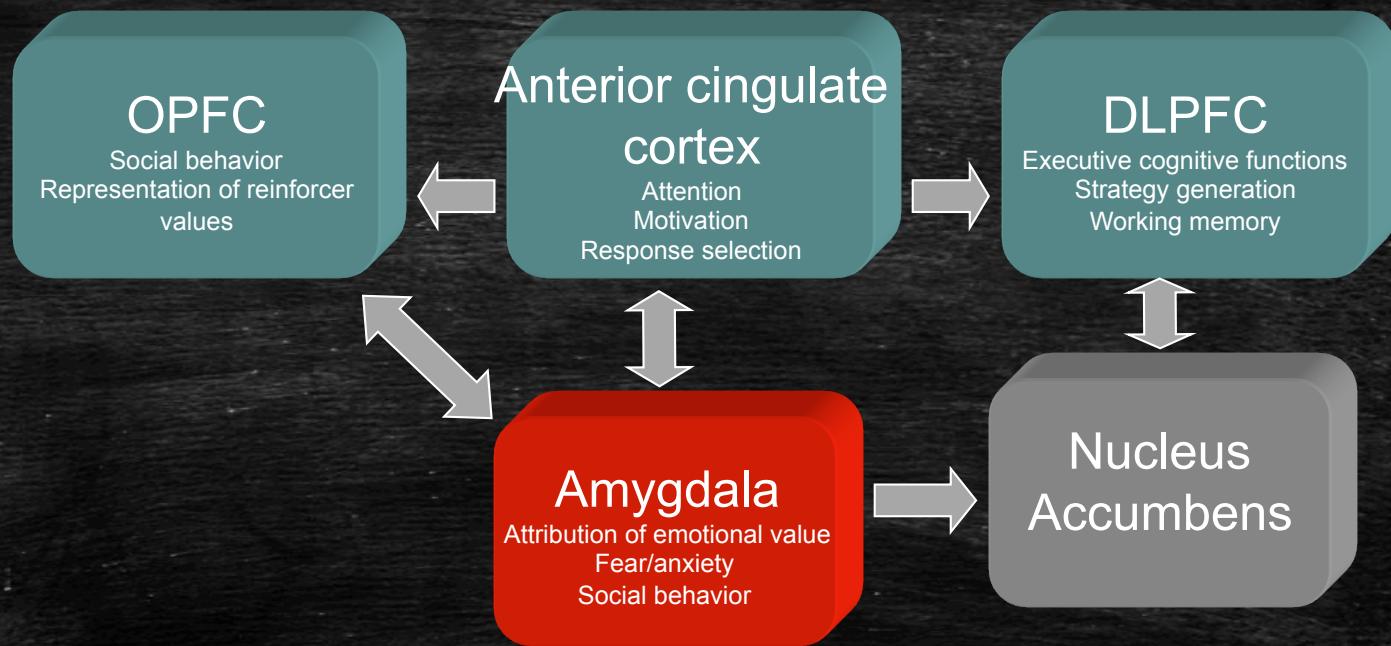




Trauma produces an anatomical change in the brain

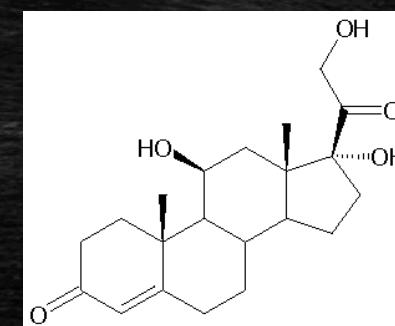
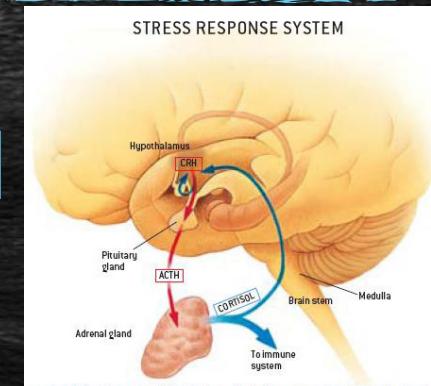
Post-trauma fear network in Amygdala





# Biology

- Dysregulation of the HPA axis (stress response)
- Cortisol levels in non-stressful situations
  - BUT variable...
    - different responses in individuals
    - different dysregulation of HPA axis...
      - Leads to different behavioral problems
  - Growth hormone, early puberty onset
  - Sympathetic nervous system over-activation
    - Suppressed immune function, memory functioning



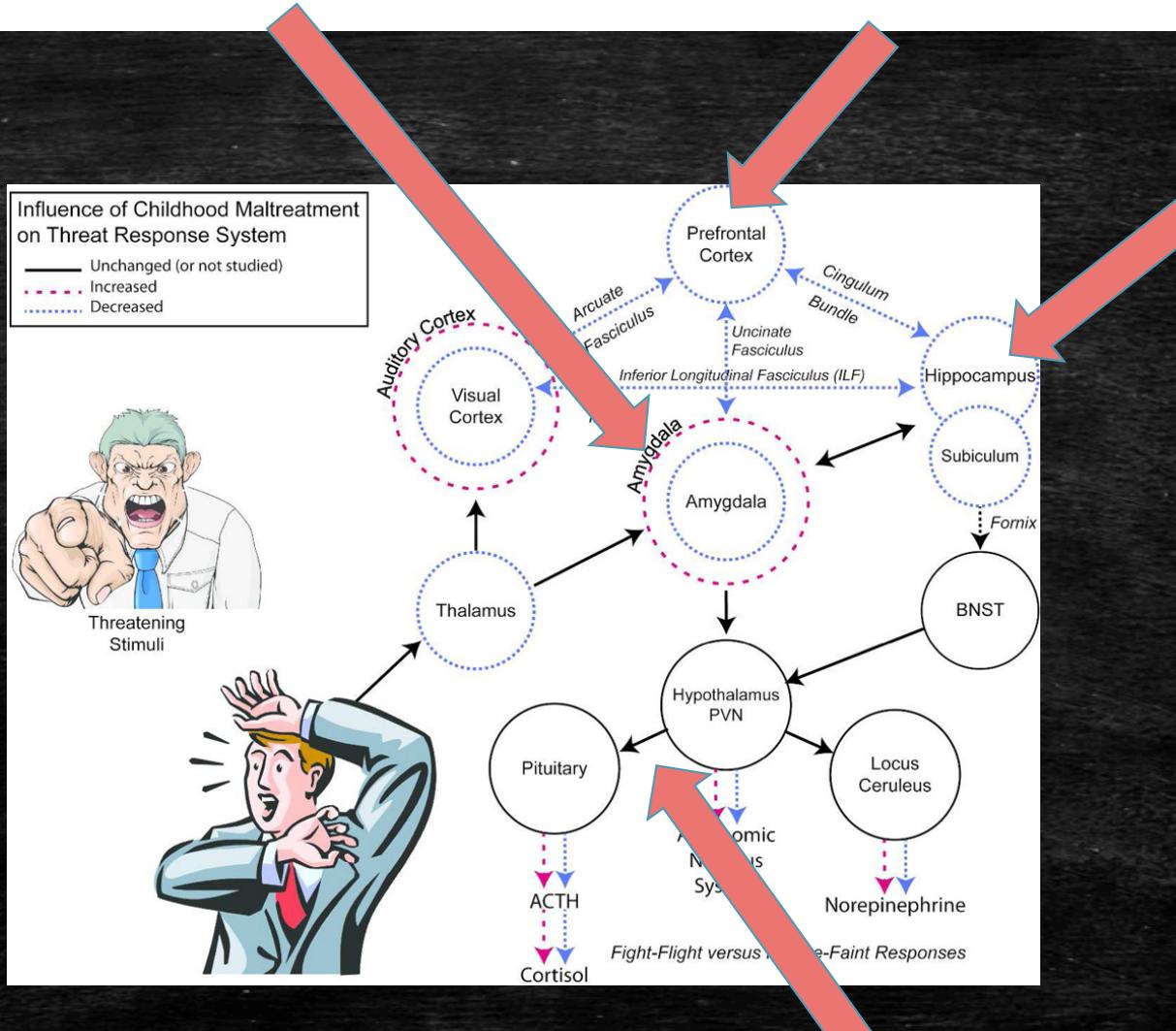
Mattson

# Cortisol

---

- Activeert kort geheugen
- Activeert amygdala herinneringen selecteren/ opslaan/ sterker vastleggen

'Cortisol als overlevingshormoon' (Müller)



[Teicher MH, Samson JA. Childhood maltreatment and psychopathology: A case for phenotypic variants as clinically and neurobiologically distinct subtypes.](#) Am J Psychiatry. 2013 Oct 1; 170(10): 1114–1133

Type 2 of Complex Trauma  
of Complex Posttraumatic Stress disorder  
of Trauma Developmental Disorder

---

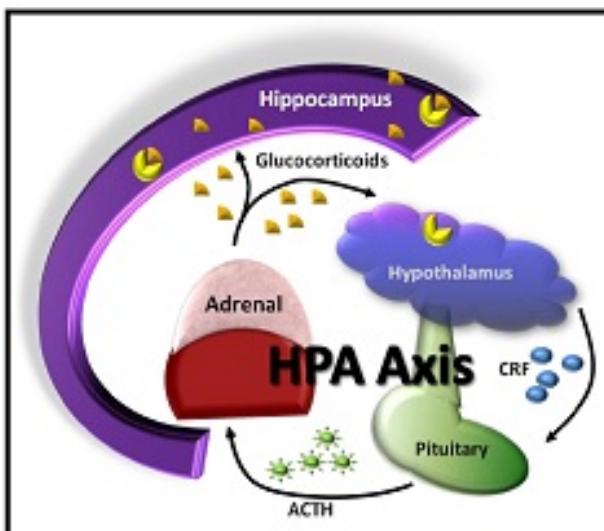
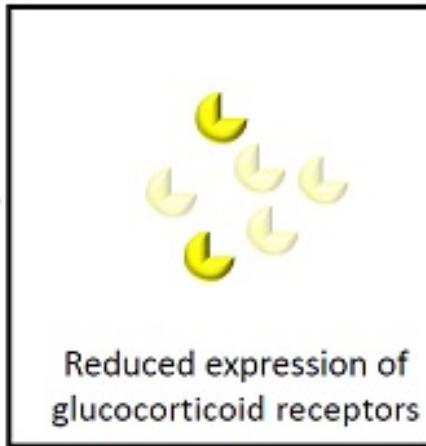
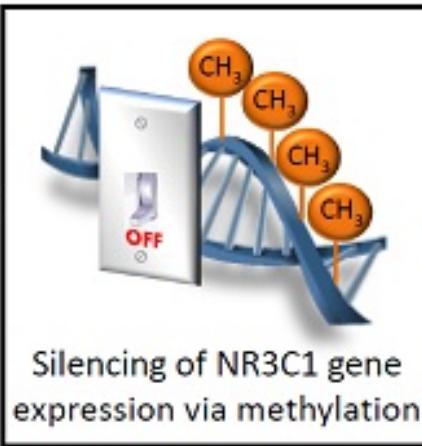
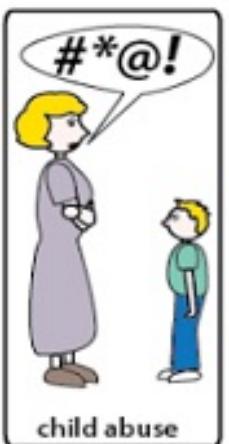
**6 DOMEINEN**

- 1. Affect en impulsiviteit regulatie**
- 2. Aandacht en concentratie**
- 3. Zelfbeeld**
- 4. Hechting en relaties met anderen**
- 5. Somatisatie**
- 6. Verstoring van mentalisatieprocessen**

## Definitie Epigenetica

---

Mitotisch overerfbare verschillen in gen expressie potentiaal die niet worden veroorzaakt door verschillen in de genetische code (Jaenisch & Bird, 2003)



With a paucity of glucocorticoid receptors, there is reduced negative feedback to the HPA axis following a stress response. The HPA axis therefore becomes hyperactive and may further increase an individual's risk of developing a severe mental illness such as bipolar disorder



Romens, S. E., McDonald, J., Svaren, J. and Pollak, S. D. (2014),  
[Associations Between Early Life Stress and Gene Methylation in Children](#). *Child Development*.

## Associations Between Early Life Stress and Gene Methylation in Children

Sarah E. Romens, Jennifer McDonald, John Svaren, and Seth D. Pollak

*University of Wisconsin–Madison*

Children exposed to extreme stress are at heightened risk for developing mental and physical disorders. However, little is known about mechanisms underlying these associations in humans. An emerging insight is that children's social environments change gene expression, which contributes to biological vulnerabilities for behavioral problems. Epigenetic changes in the glucocorticoid receptor gene, a critical component of stress regulation, were examined in whole blood from 56 children aged 11–14 years. Children exposed to physical maltreatment had greater methylation within exon 1<sub>F</sub> in the NR3C1 promoter region of the gene compared to nonmaltreated children, including the putative NGFI-A (nerve growth factor) binding site. These results highlight molecular mechanisms linking childhood stress with biological changes that may lead to mental and physical disorders.

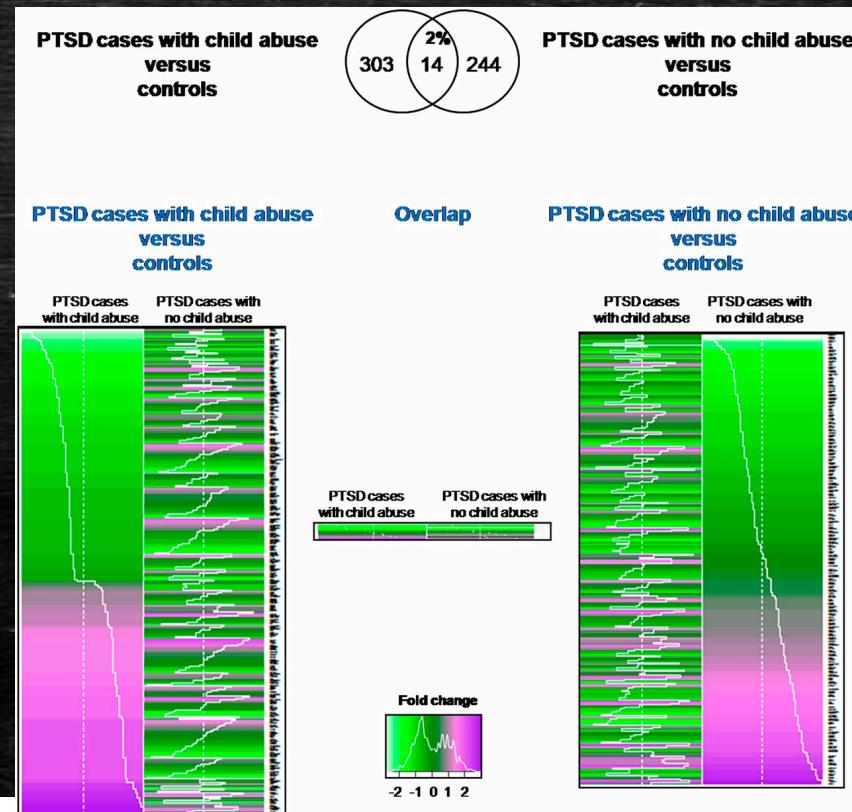
**Divya Mehta, Elisabeth Binder ea.**

**Childhood maltreatment is associated with distinct genomic and epigenetic profiles in posttraumatic stress disorder.**

**Proceedings of the National Academy of Sciences, May 14, 2013 | vol. 110 | no. 20**

---

**Influence of child abuse on gene expression profiles in peripheral blood in PTSD. (A) Venn diagram representing the overlap of transcripts significantly differentially regulated between individuals with PTSD and child abuse vs. trauma-exposed controls**



Divya Mehta et al. PNAS 2013;110:8302-8307

©2013 by National Academy of Sciences

PNAS

Miller G, Brody G, Yu T, Chen E.  
Omkering methylatie?

---

Mitigating the Effects of Childhood Disadvantage: A Family-Oriented Psychosocial Intervention Reduces Inflammation in Low-SES African American Youth.

*Proceedings of the National Academy of Sciences.* 2014.

# Holocaust Exposure Induced Intergenerational Effects on *FKBP5* Methylation

---

Rachel Yehuda, Biological Psychiatry, 2015/08 (in press)

**Science** 27 March 2015:  
**Vol. 347 no. 6229 pp. 1480-1485**

---

## **Intergenerational transmission of child abuse and neglect: Real or detection bias?**

Cathy Spatz Widom<sup>1</sup>, Sally J. Czaja<sup>1</sup>, Kimberly A. DuMont<sup>2</sup>

.... Offspring of parents with histories of childhood abuse and neglect are more likely to report sexual abuse and neglect and that CPS was concerned about them at some point in their lives....

# **Developmental Trauma Disorders**

## **(Bessel van der Kolk)**

# TRAUMA-INFORMED PSYCHOTHERAPIE

