

The  
Resilient Revolution  
takes on

# Attachment, Adverse Childhood Experiences (ACEs) and Neuroscience



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# Grand Theory in Adversity and Child Development

- Psychoanalysis (Freud)
- Object Relations (Klein, Winnicott)
- \*Attachment (Bowlby and Ainsworth)
- \*Neuroscience
- \*Adverse Childhood Experiences (Kaiser HMO - US)
- \*Resilient Framework

The discourse has been dominated  
by the constructs of:

Damage and Pathology

Leading to those most  
affected being

additionally disadvantaged.

# What to cover.....

- **Attachment** (Bowlby 1969, Ainsworth)
- **Neuroscience:** Adversity and brain development (Glaser 2000)
  - Genetics** (Maoa gene)
  - Gene-Environment Interactions** (Methylation)
  - Neurobiological processes** (HPA et al)
- **Adverse Childhood Experiences (ACEs)**
- **What this might mean for Intervention**
- **Where to for resilience**



# Attachment



# Attachment Theory

- Proximity Seeking Under threat (Bowlby)
- Testing for (Ainsworth)
- Institutional Care (Tizard and Tizard)
- Types subtypes and controversies
- Secure v Insecure (39%)
- Disorganised
- Disorder of Attachment

# Attachment Theory

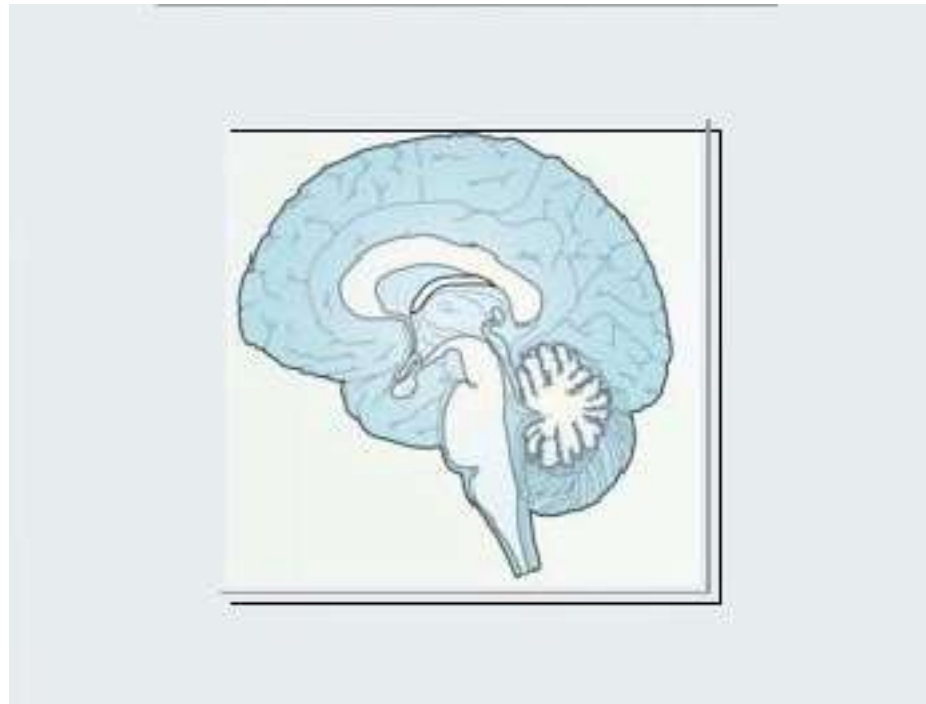
- How predictive is it?
- In 'constellated disadvantage', all are insecure at least
- What do we do about it?
- Adaptive v Pathologising
- Attachment based therapies



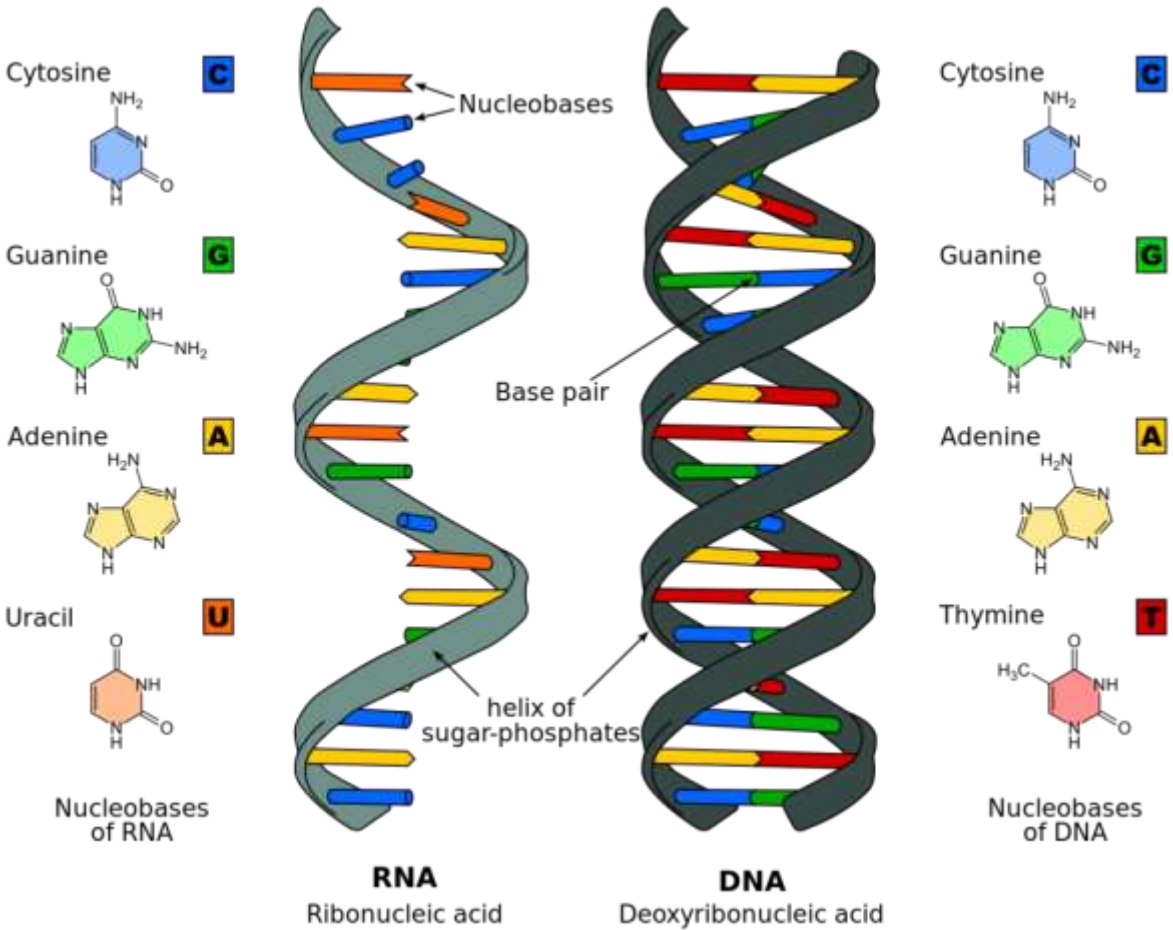
# De-Attachment

- Part of the story only
- A biased one
- Limited scope
- What about all those Resilient Mechanisms?

# Neuroscience (Brains)



# DNA RNA



# Genetics

- Monoamine Oxidase A gene
- “We studied a large sample of male children from birth to adulthood to determine why some children who are maltreated grow up to develop antisocial behavior, whereas others do not. A functional polymorphism in the gene encoding the neurotransmitter-metabolizing enzyme monoamine oxidase A (*MAOA*) was found to moderate the effect of maltreatment. Maltreated children with a genotype conferring high levels of *MAOA* expression were less likely to develop antisocial problems. These findings may partly explain why not all victims of maltreatment grow up to victimize others, and they provide epidemiological evidence that genotypes can moderate children's sensitivity to environmental insults.”

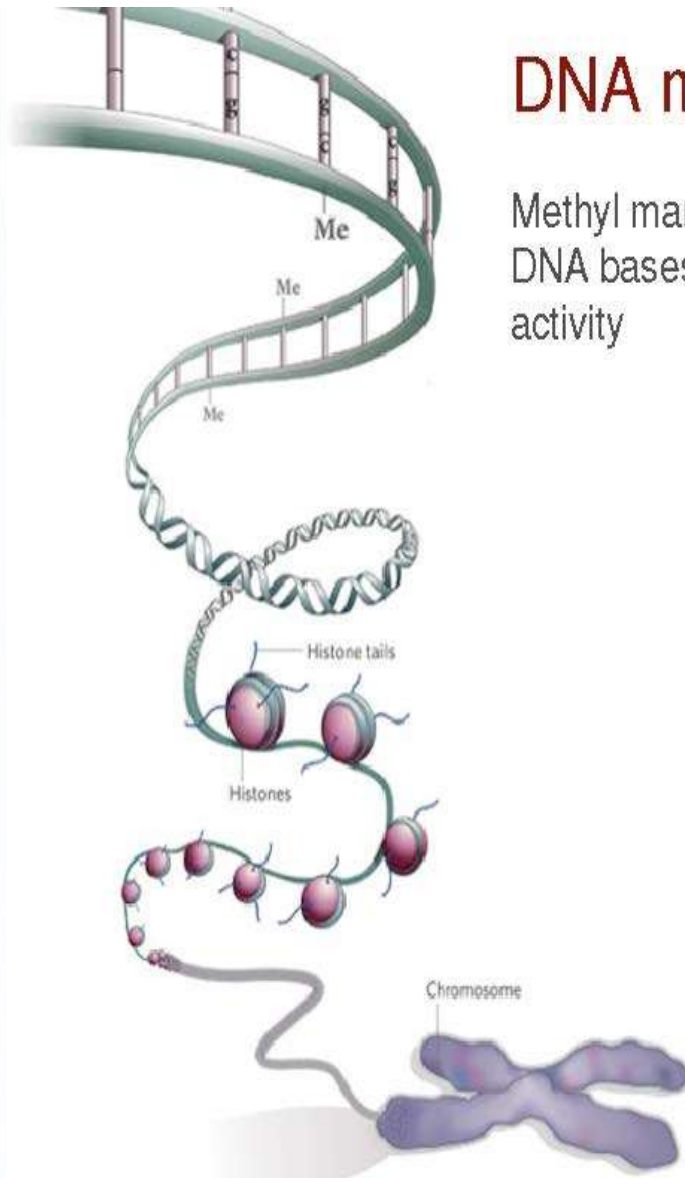
(Caspi et al 2002)

# Gene-Environment Interactions

- DNA
- DNA/RNA/Transcription
- DNA Methylation determines whether the information is read or not
- Identical Twins seen at age 3 and at age 50
- Those with a history of adversity in childhood show much higher rates of DNA Methylation

# DNA methylation

Methyl marks added to certain DNA bases repress gene activity



# Neurobiological Processes

- Hypothalamic Pituitary Axis (HPA)
- Neurotransmitters (Serotonin, Oxytocin)
- Autonomic Nervous System (Sympathetic and Parasympathetic)
- Brain Content and Structure

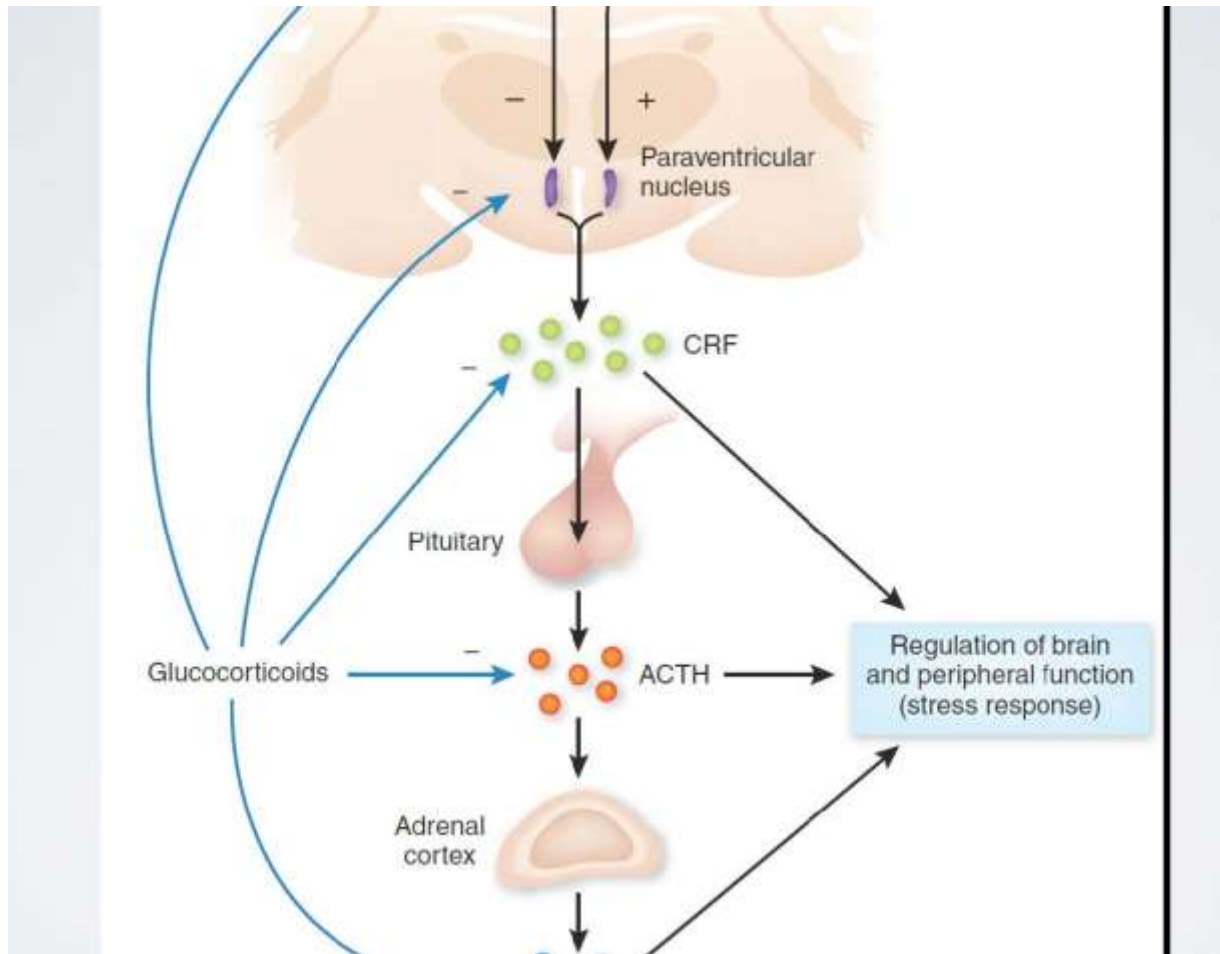
# HPA and Stress Response

- Chronic Stress and Trauma lead to a pattern of hyper- and hypo-cortisolism, blunted responses and impaired negative feedback in HPA systems
- Whereas HPA system is quiescent when a child is stressed but is given attuned care
- Licking and Serotonin
- Early stress and poor caregiving are associated with atypical HPA axis functioning

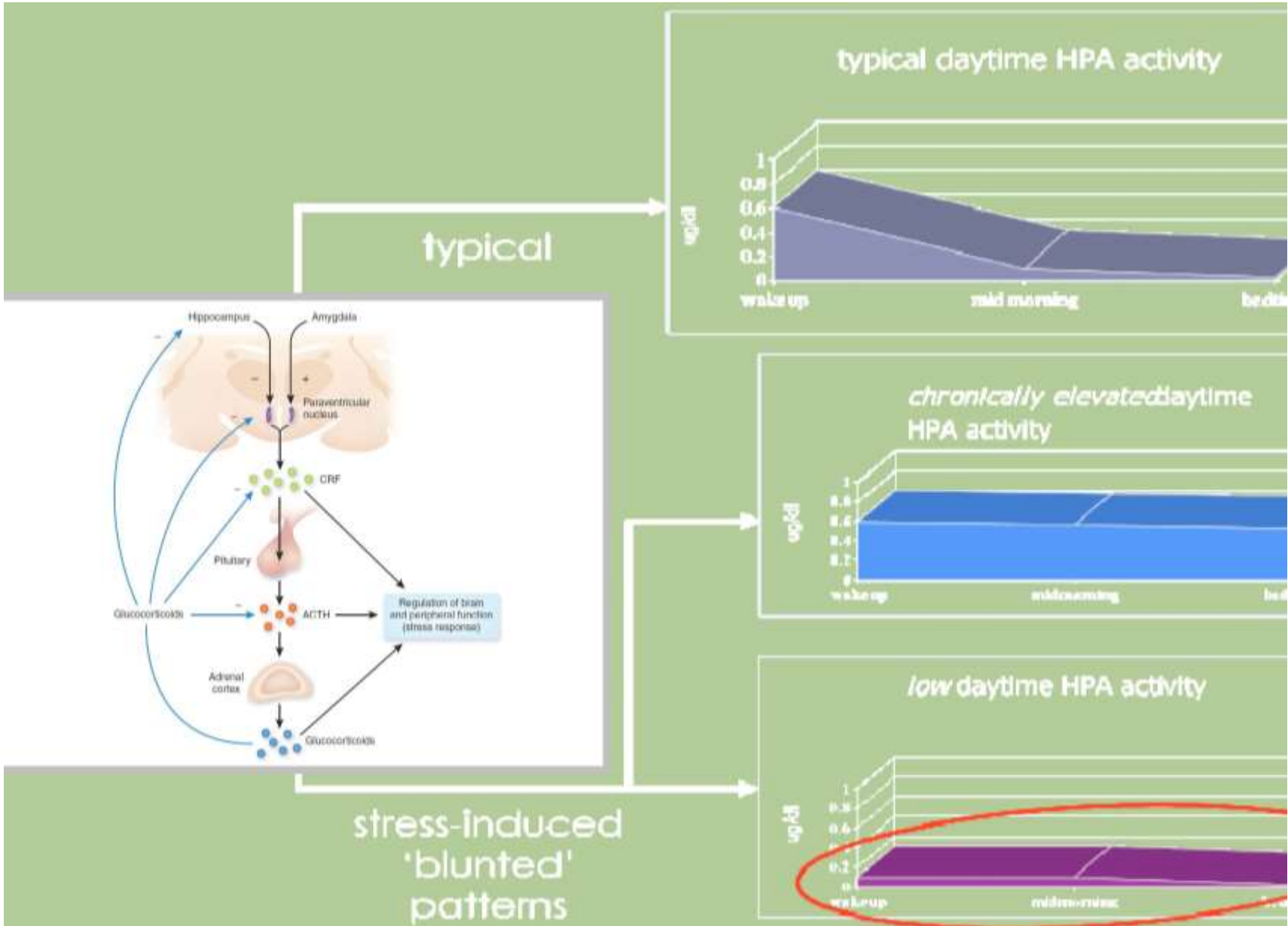


# HPA

Hippocampus Amygdala



# HPA



# Implications for Intervention

- Can we predict by these neurobiological markers response to intervention?
- DRD4 allele means parenting intervention works with behaviour problems
- Improving attunement in care – effects on HPA
- “tentative conclusions”
- Some hope

# DRD4 7 Repeat Allele

- The **dopamine receptor D<sub>4</sub>** is a dopamine [D2-like G protein-coupled receptor](#) encoded by the [DRD4](#) gene on [chromosome 11](#) at 11p15.5.<sup>[5]</sup>
- As with other [dopamine receptor](#) subtypes, the D<sub>4</sub> receptor is activated by the [neurotransmitter dopamine](#). It is linked to many neurological and psychiatric conditions<sup>[7]</sup> including [schizophrenia](#) and [bipolar disorder](#),<sup>[8]</sup> [ADHD](#),<sup>[9][10]</sup> addictive behaviors,<sup>[11]</sup> [Parkinson's disease](#),<sup>[12]</sup> and [eating disorders](#) such as [anorexia nervosa](#).<sup>[13]</sup>
- Several studies have suggested that parenting may affect the [cognitive development](#) of children with the 7-repeat allele of *DRD4*.<sup>[38]</sup> Parenting that has maternal sensitivity, mindfulness, and autonomy–support at 15 months was found to alter children's executive functions at 18 to 20 months.<sup>[38]</sup> Children with poorer quality parenting were more impulsive and sensation seeking than those with higher quality parenting.<sup>[38]</sup> Higher quality parenting was associated with better [executive control](#) in 4-year-olds
- An “allele” is a variant form of a given gene.

# Adverse Childhood Events

- **ACE Category**
- **ABUSE**
  - Emotional Abuse
  - Physical Abuse
  - Sexual Abuse
- **HOUSEHOLD CHALLENGES**
  - Mother Treated Violently
  - Household Substance Abuse
  - Household Mental Illness
  - Parental Separation or Divorce
  - Incarcerated Household Member
- **NEGLECT**
  - Emotional Neglect<sup>3</sup>
  - Physical Neglect<sup>3</sup>

# ACE

## Number of Adverse Childhood Experiences (ACE Score)

	Women	Men	Total
0	34.5%	38.0%	36.1%
1	24.5%	27.9%	26.0%
2	15.5%	16.4%	15.9%
3	10.3%	8.5%	9.5%
4+	15.2%	9.2%	12.5%

# The more ACEs the more.....

- Alcoholism and alcohol abuse
- Chronic obstructive pulmonary disease
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease
- Liver disease
- Poor work performance
- Financial stress
- Risk for intimate partner violence
- Multiple sexual partners
- Sexually transmitted diseases
- Smoking
- Suicide attempts
- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy
- Risk for sexual violence
- Poor academic achievement\*

NB. This list is not exhaustive.

# Deep now in Pathology

- Glimmers of hope?
- Attachment based therapies
- Triaging according to genes
- Soothing and calming
- Knowing your stress responses
- Knowing your brain
- Is that it?



# For Resilience.....

- Accepting
- Hope is an intervention
- As is 'specific treatments'
- But the language and learning?
- More precise?
- Promise? Exciting? Funding?
- Just concentrates on damage?

# (Un-)Pathologising Pathology

- Focused on damage
- Narrow
- Simplifying links
- Not complex
- Not contextualised
- We know this enough now
- We need to translate this into usable form
- We need to find the connection with resilient working

# For Resilient Working

- Resilience as a superordinate construct
- Whole System Approach
- How do we incorporate these grand theories?
- Accepting, Conserving, Commitment, Enlisting
- Basics, Belonging, Learning , Coping, Core Self

# Some questions

- Do we need trials?
- What kind of validation?

# Resilient Therapy

Working with Children and Families



Angie Hart and Derek Blincow with Helen Thomas (2007)

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