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Risk factors for developmental problems in children and youth

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General risk factors

- Genetic influence (vulnerability, temperament)
- Negative and inconsistent parenting (punishment, coercive circle, mental illness) develop conduct disorders
- Early onset (before 10) influence progosis
- Children living in longlasting stress and anxiety situastions develop neurobiological impairment
- Unsafe attachment can elicit serious mental impairment
- Children living in poverty can be delayed in language and general intelectual development

Transmission across generations

- **It is proven transmission across generations of child protection services and social security clients**

- Child care is moderately stable across generations
- Weak and harmfull child care stransmits more over generations than high quality care
- Four of five families in child protection services are low SES families

Basic knowledge about neurobiological, psychological and social problems in order to understand risk factors for mental health and psychosocial problems in children

The principal function of the brain
The brain levels

- **The survival brain (brain stem and cerebellum)**

  Reflexes, breath, heartrate, bloodpressure

- **The emotion brain (the limbic system)**

  Anger, anxiety, memory, hormones involved in stress

- **The logic brain (neo-cortex)**

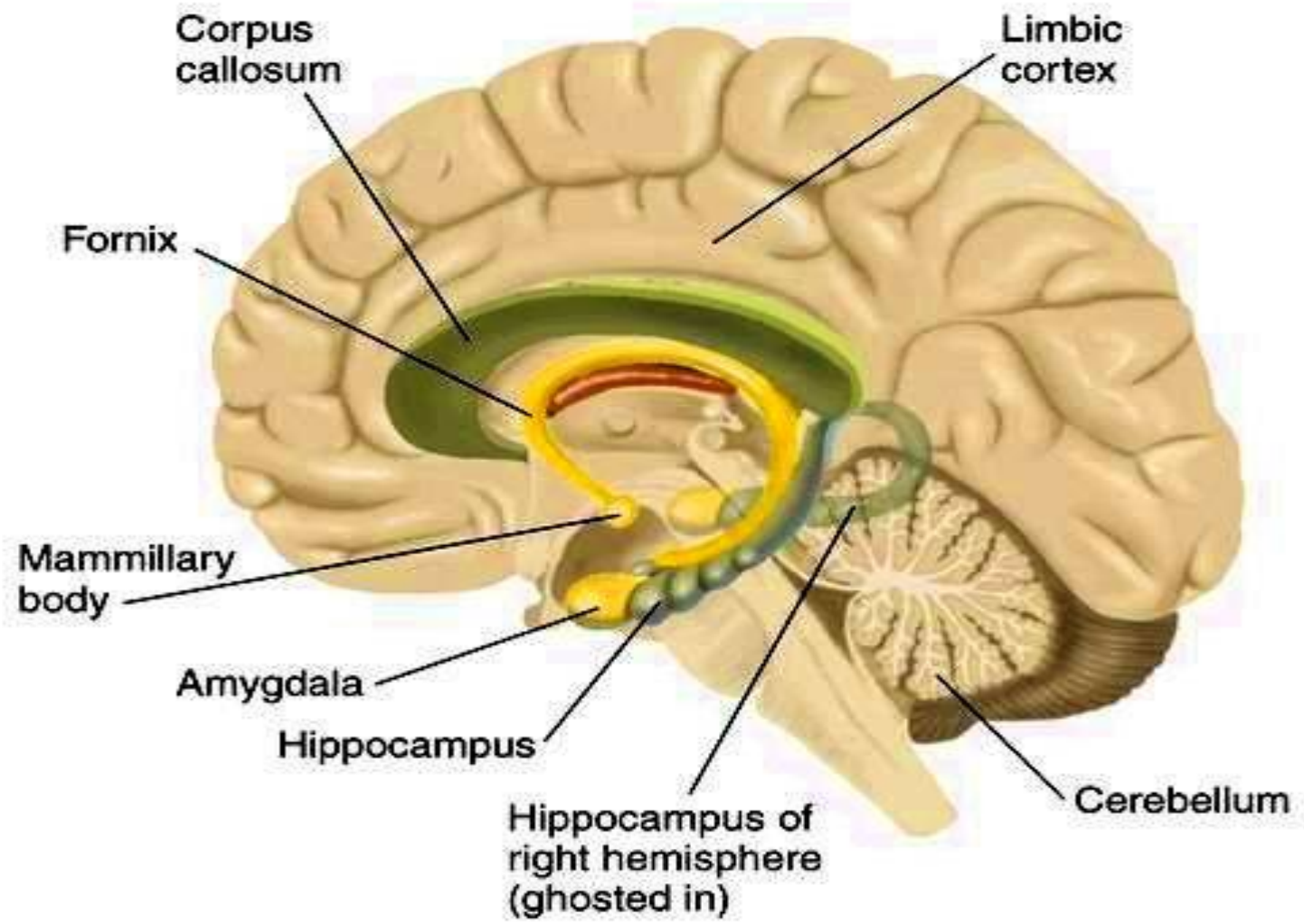
  Language, consciousness, operant behavior

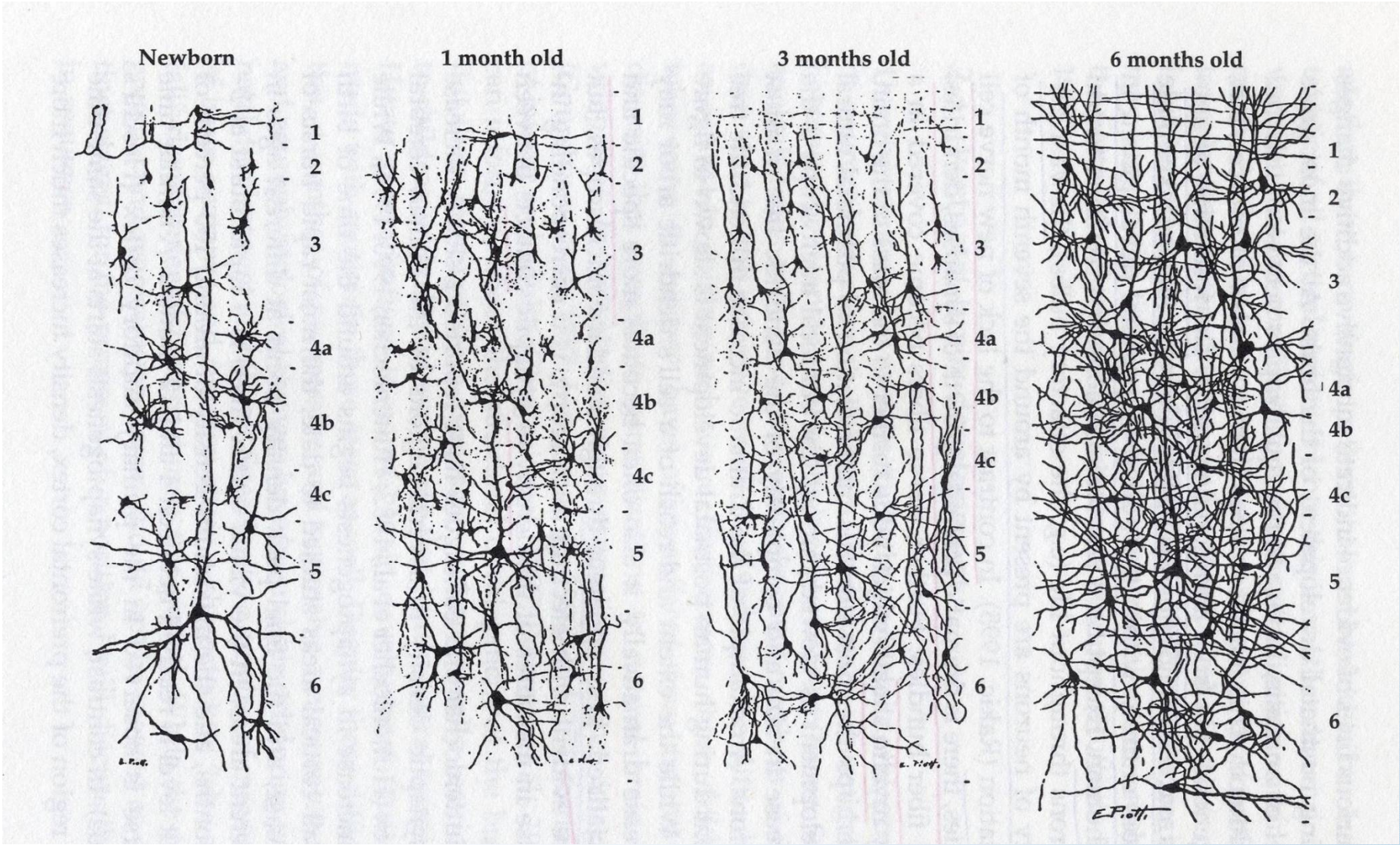
The use dependent brain

- Born with 100 billion cells
- Only 12-15% connected at birth
- Later connctions are dependent upon experiences
- Three years with 250.000 new connections pr hour
- The brain is not fully developed until the age of 25
- A total of 1000000000000000000000000
- Use it or loose it (Torstein Wiesel 1961, Nobel price winner 1983)

- Further reading: Alison Gopnik, Andrew Melzow, Patricia Kuhl: The scientist in the crib.

CHILD BRAIN PROTECION





The brain organizes herself from bottom to top

- Most of the cell bodies are in the survivalbrain
- The axons branch upward and link the brain together as a consequence of experiences

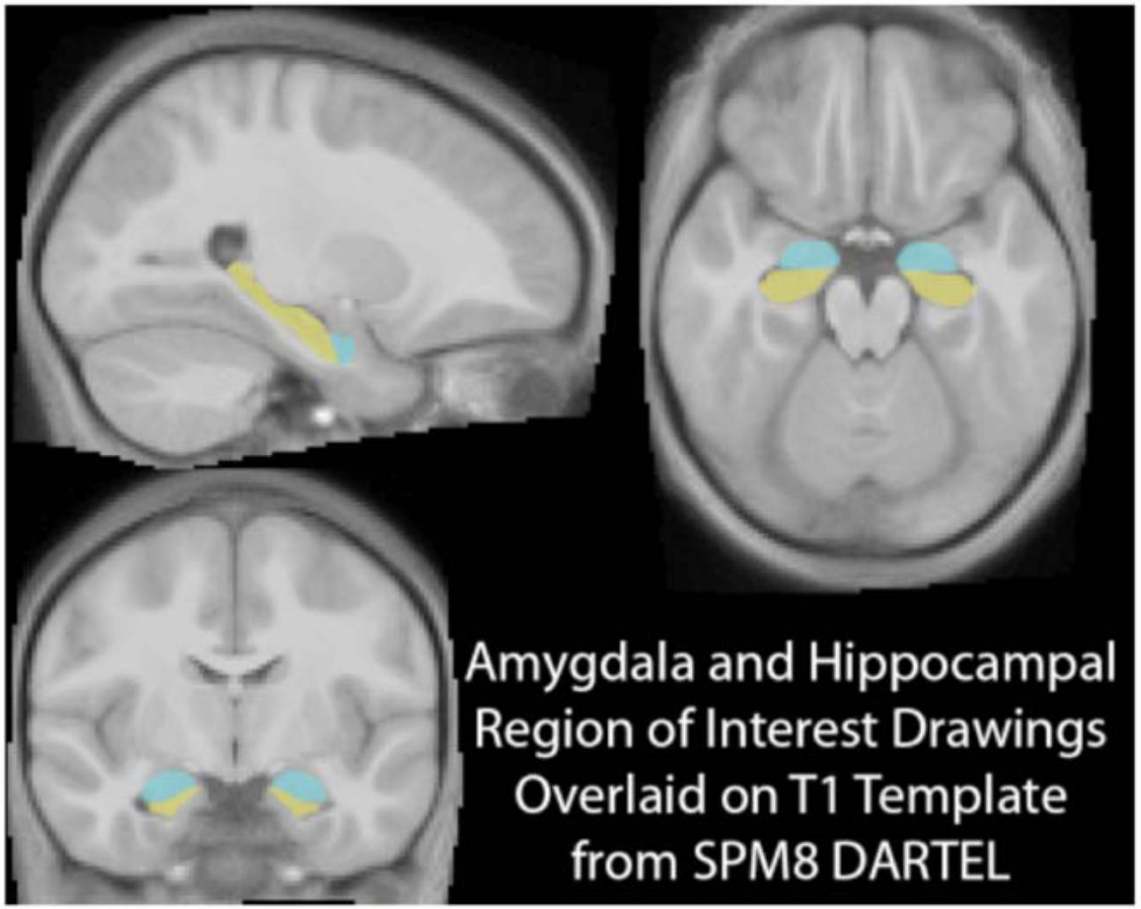
Domestic violence

- What happens in the 1 ½ year old child who has escaped under the living room table and is very quiet during all the last hour with his hands over his head for protection

Hippocampus

- The child can never remember what happened because the context creator and reporter, **hippocampus** is not developed before the age of four. Later, hippocampus register, store and submit such experiences to explicit memory

Hippocampus area (yellow)



Hippocampus get injured

- This do not mean that hippocampus remains intact under the livingroom table. Older children can remember and tell us that the heart was bumping tremendously with a violent father and a mom running around in the house, bleading and falling.

The HPA system

- The stress system in the child (HPA) is activated on top level in such situations
- If it happends regularily during the early years will traumatic memories be stored in the alarm center in the brain much earlier than the child can remember

(HPA= Hypotalamic-Pituitary-Adrenalaxis system)

Amygdala

- The alarm center has the Greek name *amygdala* meaning almond due to its shape, and is well developed at birth.
- It is the early development of the amygdala that explains why small children crawl to a place they believe is safe.

We can call it brain damage

- Amygdala becomes activated and put into «alarm-level» at all early stress situations. A high activity level can be permanent and harmfull even if life calms down.
- This activation can again harm hippocampus who plays a central role in the development of a quick and efficient memory

A dramatic conclusion

- Not only will terrifying pictures be stored in the childs memory, the tool itself, (hippocampus) to be used by the child to master normal daily living and later, stressfull situations, is destabilized and create fear in itself.
- To call domestic violence a crime is therefore the truth

The following is self evident

- If we harm hippocampus in a child, we reduce the possibility to succeed in school
- If a child not succeed in school, an exclusion in the labour market and a new generation of children in the social welfare system is not far away

The basic structures and examples of consequences of traumatization

Amygdala: «Alarm center». Sends signals to the Adrenal gland: Activates «fight- or- flight» reactions

Hippocampus: Differenciate between danger and non - danger and transfer to explicit recall: Reduced ability to separate betweeen danger and non danger

Orbito frontal cortex: Important in attachment and cueing of social signals: Reduced ability of relation building and behavioral flexibility (learning)

Medial prefrontal cortex: Self–observation, self regulation and emotional signals from the limbic system: Impusivity and lack of reflections. Emotional unstability

Unsafe elusive attachment

- Unsafe, elusive attachment: Parents respond with anger and anxiety to the child's attachment behavior.
- The child avoid the parents responses by tuning down attachment behaviors. They display silent, non-attentive behaviors and independency

Unsafe ambivalent attachment

- Unsafe, ambivalent attachment: Parents are passive and callous.
- The child escalate the attachment behavior and display temper tantrums, anger and defiance

Unsafe desorganized attachment

- Unsafe, desorganized attachment: Parents are violent and ridiculing the child.
- The child shows fear for the caregiver and displays stereotypic behavior, anxiety and confusion. The child is in risk for developing serious mental health problems.

Social impairement, low Socio-economic status (SES)

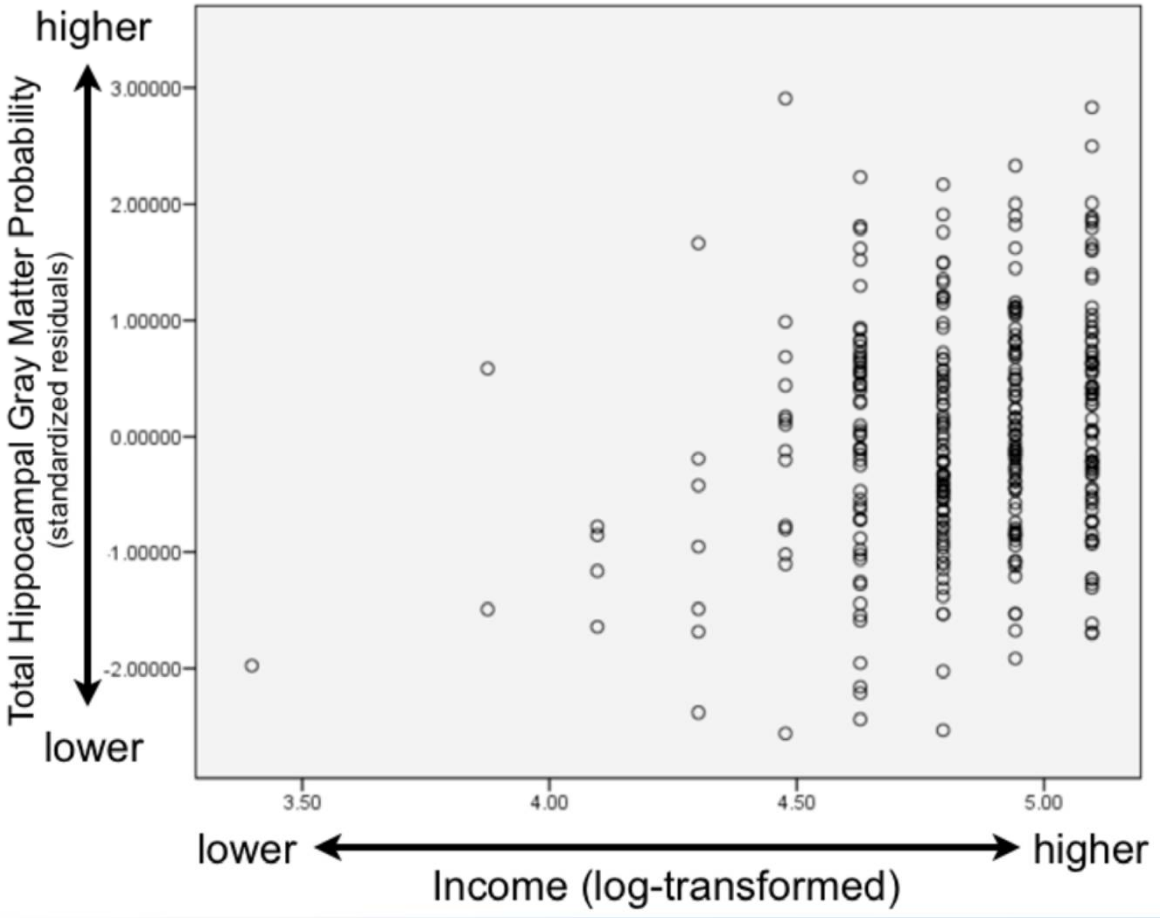
Children living in relative poverty can develop language delay and, cognitive and emotional impairments

(Hart & Risley 1995). Children of social security recipients (Low SES) developed only ¼th of the vocabulary of children in high SES families

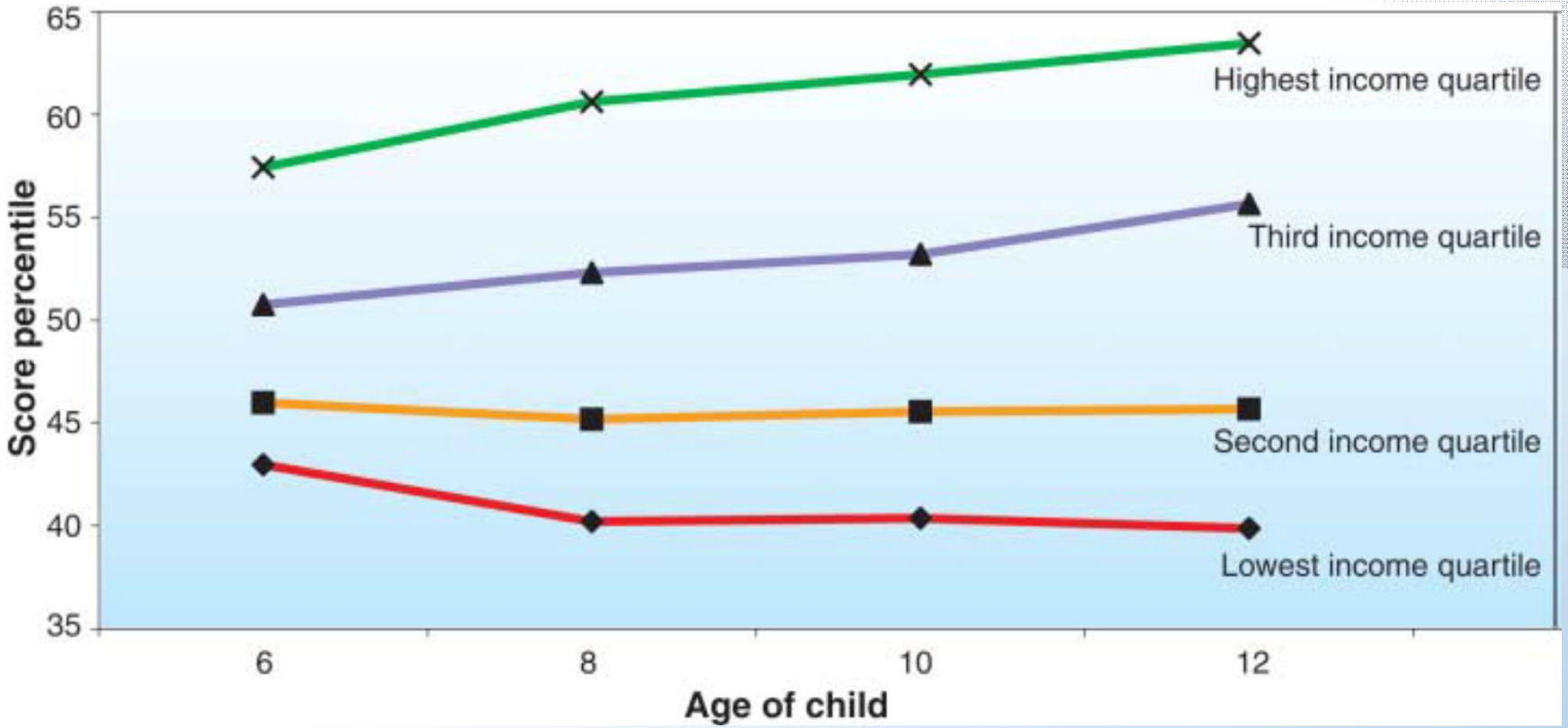
Parenting differences between SES groups

- Parents with high SES talked twice as much and used richer language than parents with low SES
- Parents with high SES interacted with their child four times more than parents with low SES
- Children in high SES families received seven times as much positive attention and only one third of criticisms than children in low SES families
- These parenting skills explained 61% of the variation in language growth and 59% of the variation in the childrens general intellectual development

Hippocampus size related to income
From $5000 - $100000 pr year



Percent score on«Peabody Individual achievment test – math» related to parental income and age



Accumulation of risk factors increase the probability of mental health and psycho-social problems

Mental health and psychosocial problems in children and youth at risk (1)

- Vulnerability of development of mental health problems (genetic influence, temperament)
- No differentiation between dangerous and non-dangerous situations (amygdala impairment)
- Memory problems (reduced hippocampus size)
- Traumatic experiences stored in hippocampus, living with high level of readyness (high anxiety level) (reduced hippocampus size)
- Reduced ability to change cognitive strategies (orbito frontal cortex impairement)

Mental health and psychosocial problems in children and youth at risk (2)

- Impulsivity, emotion regulation problems and lack of reflection (medial prefrontal cortex impairement)
- Delayed language development and reduced general intellectual capasity (parenting style and low SES)
- Relationship problems (unsafe attachment)
- Behavior problems (unsafe ambivalent attachment)
- Behavior problems (genetic influence, parenting style, the coercive process)

The trippel risk

- Genetic influence
- Harmfull living conditions (stress and anxiety, poverty, attachment probems)
- Negative parenting (punishement, coercive circle, negative role models)

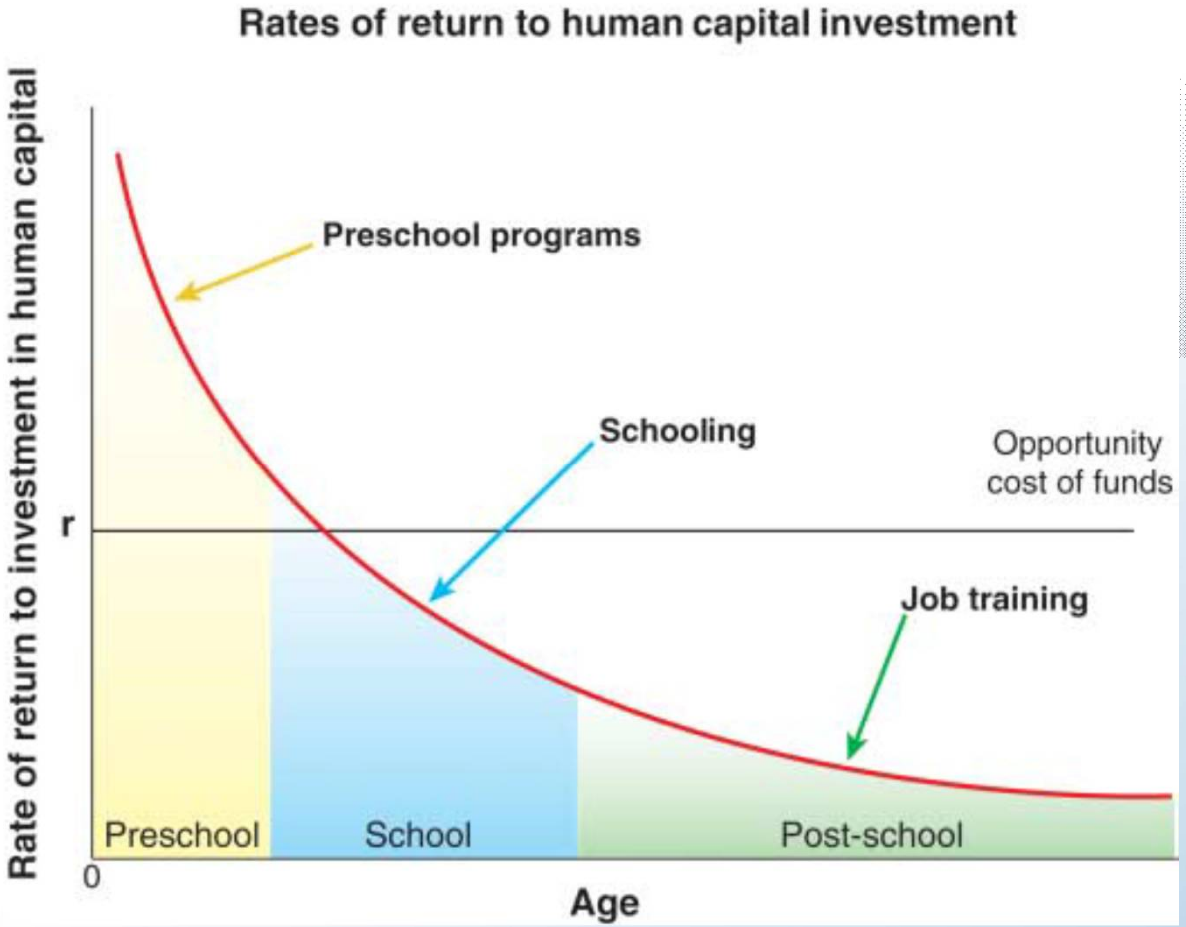
Investments

- James Heckman. Economist. Nobel prize in economiy in 2000
- Investments promoting and protect childrens cognitive development gives great earnings in the future

- Heckmans promise:

- Reduction of large expences by prevening drop out in school
- Great earnings from future well educated tax-payers

Rate of return to human capital investment (Opportunity costs of funds = if invested in savings)



Thank you for your attention