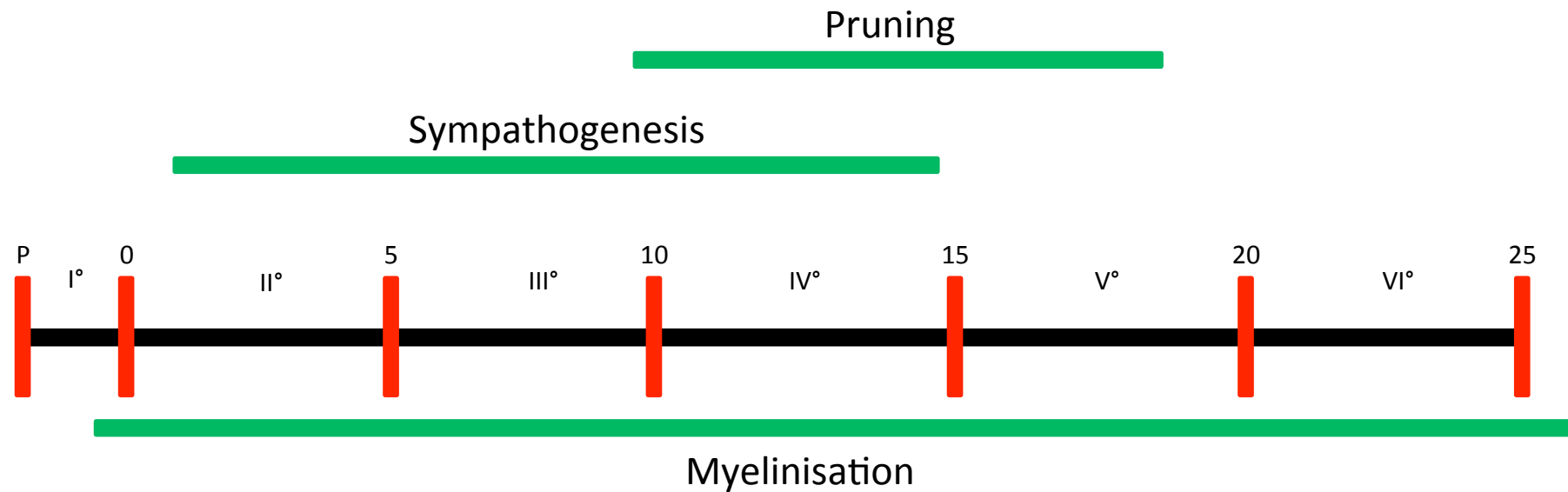


1



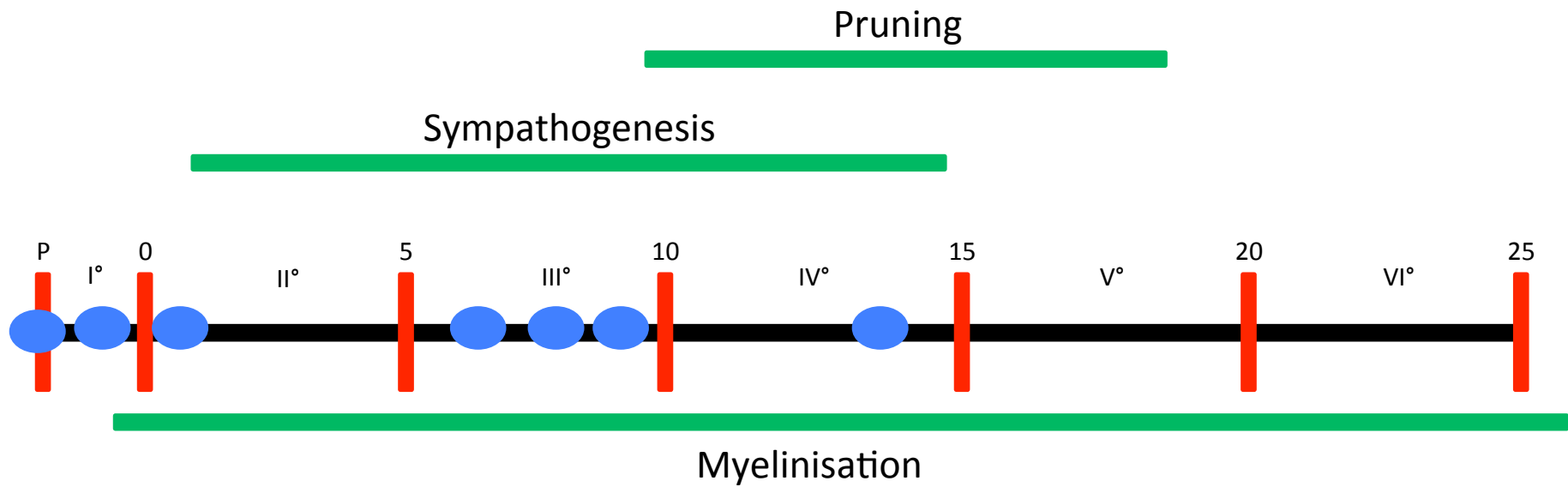
Età cerebrale

2



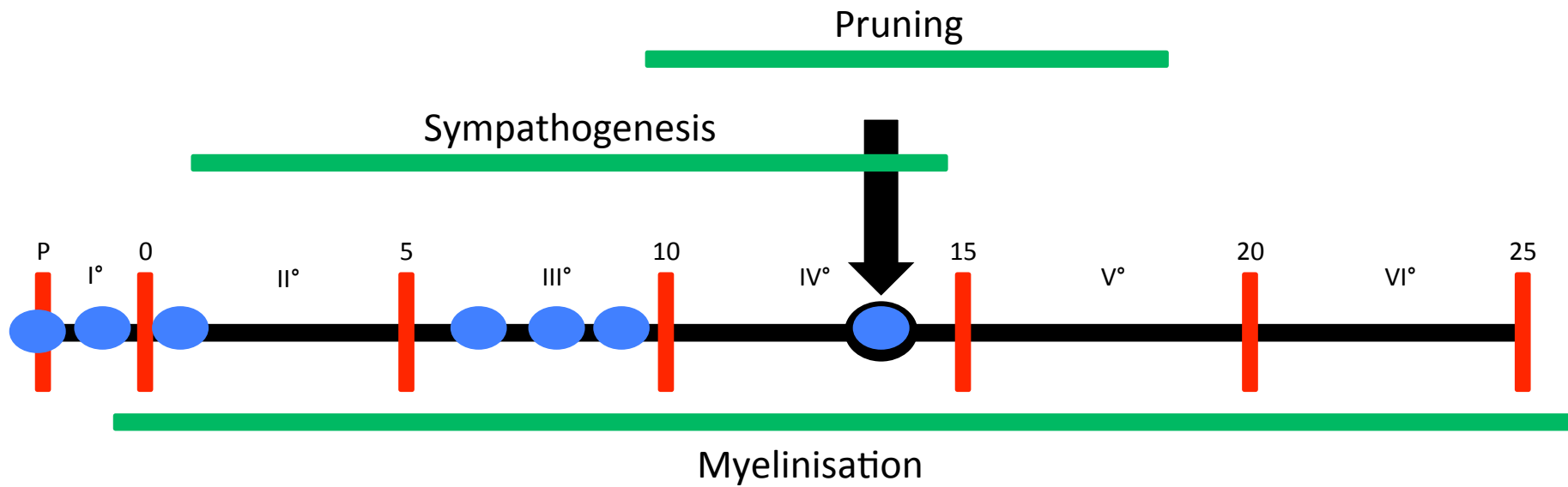
Età cerebrale+ Droga+Maturità cerebrale

3



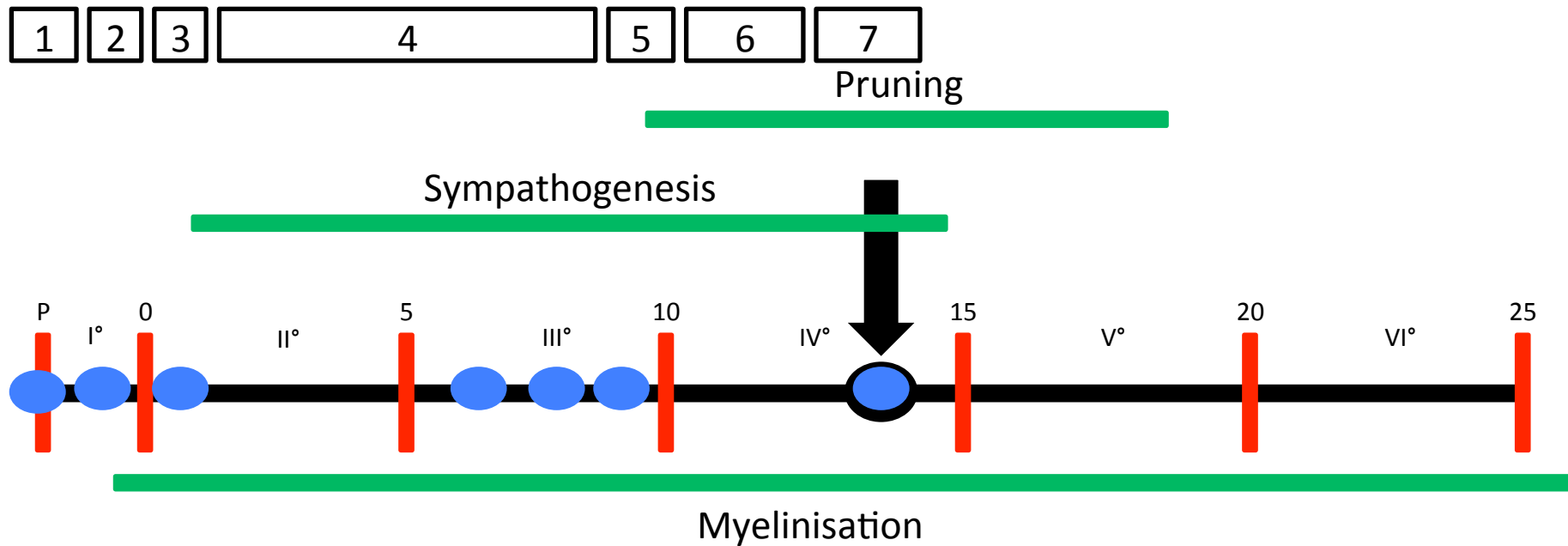
Età cerebrale+ Droga+Maturità cerebrale

4



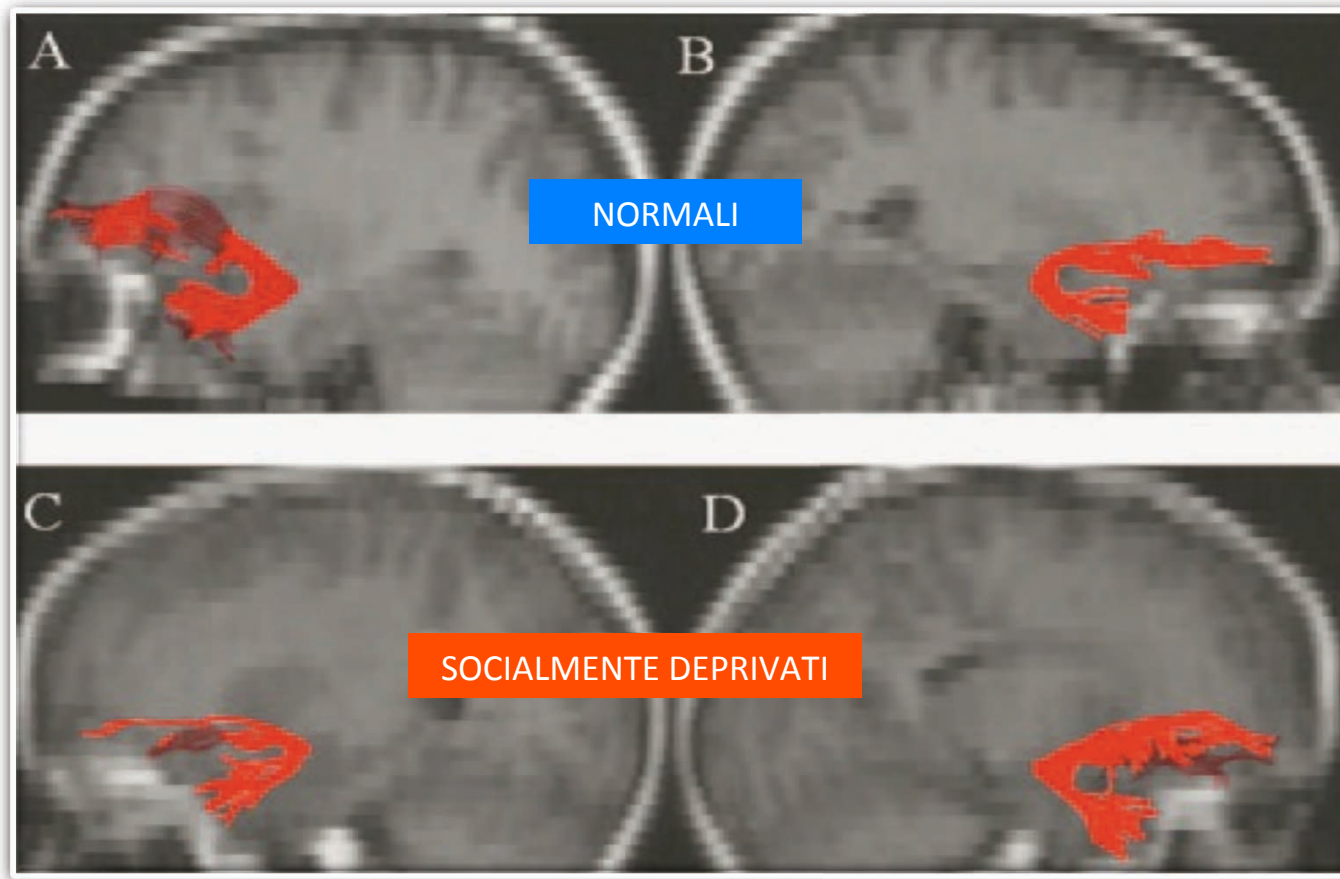
Età cerebrale+ Droga+Maturità cerebrale

5



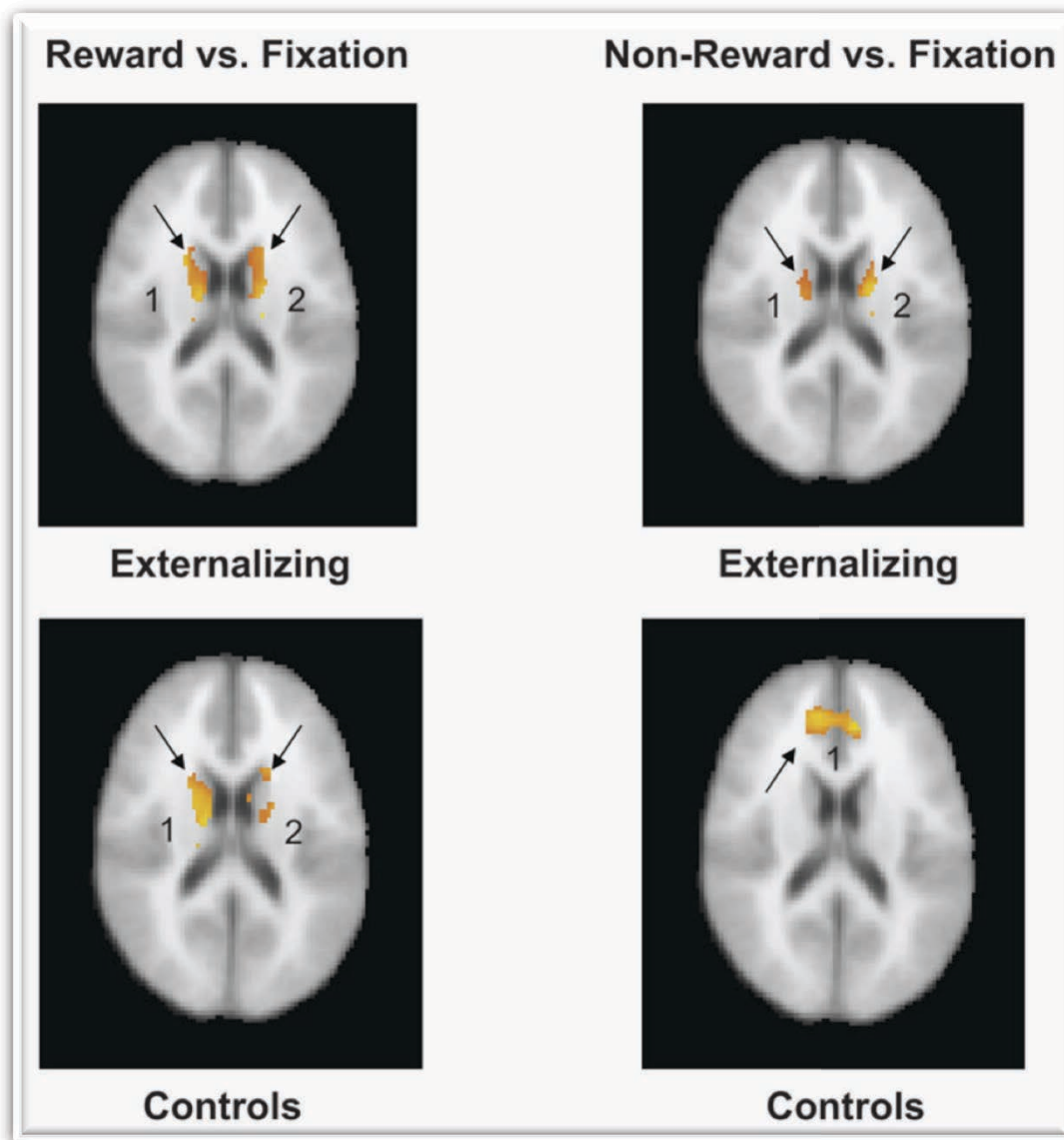
Età cerebrale+ Droga+Maturità cerebrale

# SOCIAL DEPRIVATION



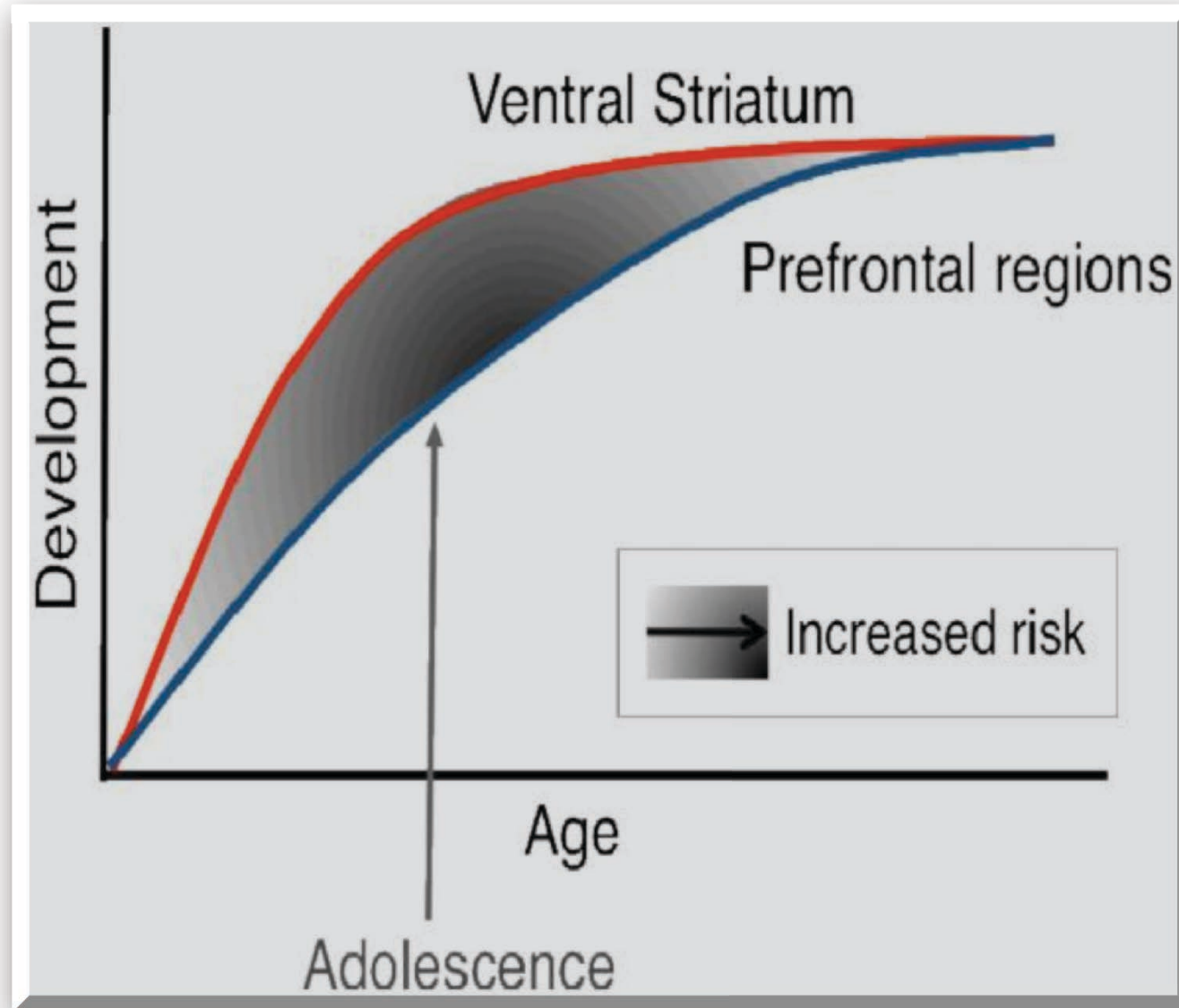
Eluvathingal TJ, Chugani HT, Behen ME, Juhász C, Muzik O, Maqbool M, Chugani DC, Makki M. Abnormal brain connectivity in children after early severe socioemotional deprivation: a diffusion tensor imaging study. *Pediatrics*. 2006 Jun;117(6):2093-100

# EXTERNALIZING



Gatzke-Kopp LM, Beauchaine TP, Shannon KE, Chipman J, Fleming AP, Crowell SE, Liang O, Johnson LC, Aylward E. Neurological correlates of reward responding in adolescents with and without externalizing behavior disorders. *J Abnorm Psychol.* 2009 Feb;118(1):203-13.

# BRAIN MATURATION



[Casey BJ](#), [Jones RM](#). Neurobiology of the adolescent brain and behavior: implications for substance use disorders. [J Am Acad Child Adolesc Psychiatry](#). 2010 Dec;49(12):1189-201; quiz 1285. Epub 2010 Oct 8.

# GENETIC

*Curr Pharm Des.* 2012;18(1):113-8.

## "Liking" and "wanting" linked to Reward Deficiency Syndrome (RDS): hypothesizing differential responsivity in brain reward circuitry.

Blum K, Gardner E, Oscar-Berman M, Gold M.

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### Abstract

In an attempt to resolve controversy regarding the causal contributions of mesolimbic dopamine (DA) systems to reward, we evaluate the three main competing explanatory categories: "liking," "learning," and "wanting" [1]. That is, DA may mediate (a) the hedonic impact of reward (liking), (b) learned predictions about rewarding effects (learning), or (c) the pursuit of rewards by attributing incentive salience to reward-related stimuli (wanting). We evaluate these hypotheses, especially as they relate to the Reward Deficiency Syndrome (RDS), and we find that the incentive salience or "wanting" hypothesis of DA function is supported by a majority of the evidence. Neuroimaging studies have shown that drugs of abuse, palatable foods, and anticipated behaviors such as sex and gaming affect brain regions involving reward circuitry, and may not be unidirectional. Drugs of abuse enhance DA signaling and sensitize mesolimbic mechanisms that evolved to attribute incentive salience to rewards. Addictive drugs have in common that they are voluntarily self-administered, they enhance (directly or indirectly) dopaminergic synaptic function in the nucleus accumbens (NAC), and they stimulate the functioning of brain reward circuitry (producing the "high" that drug users seek). Although originally believed simply to encode the set point of hedonic tone, these circuits now are believed to be functionally more complex, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation. Elevated stress levels, together with polymorphisms of dopaminergic genes and other neurotransmitter genetic variants, may have a cumulative effect on vulnerability to addiction. The RDS model of etiology holds very well for a variety of chemical and behavioral addictions.

Elevated stress levels, together with polymorphisms of dopaminergic genes and other neurotransmitter genetic variants, may have a **cumulative effect** on vulnerability to addiction.



# INTRAUTERINE

Dev Cogn Neurosci. 2011 Oct 1;1(4):517-529.

## Developmental changes in brain function underlying the influence of reward processing on inhibitory control.

Padmanabhan A, Geier CF, Ordaz SJ, Teslovich T, Luna B.

Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA, USA.

### Abstract

Adolescence is a period marked by changes in motivational and cognitive brain systems. However, the development of the interactions between reward and cognitive control processing are just beginning to be understood. Using event-related functional neuroimaging and an incentive modulated antisaccade task, we compared blood-oxygen level dependent activity underlying motivated response inhibition in children, adolescents, and adults. Behaviorally, children and adolescents performed significantly worse than adults during neutral trials. However, children and adolescents showed significant performance increases during reward trials. Adults showed no performance changes across conditions. fMRI results demonstrated that all groups recruited a similar circuitry to support task performance, including regions typically associated with rewards (striatum and orbital frontal cortex), and regions known to be involved in inhibitory control (putative frontal and supplementary eye fields, and posterior parietal cortex, and prefrontal loci). During rewarded trials adolescents showed increased activity in striatal regions, while adults demonstrated heightened activation in the OFC relative to children and adolescents. Children showed greater reliance on prefrontal executive regions that may be related to increased effort inhibiting responses. Overall, these results indicate that response inhibition is enhanced with reward contingencies over development. Adolescents' heightened response in striatal regions may be one factor contributing to reward-biased decision making and perhaps risk taking behavior.

a greater risk of  
ADHD-related  
disorders among  
children whose  
mothers smoked  
during pregnancy

[Linnet KM](#), [Dalsgaard S](#), [Obel C](#), [Wisborg K](#), [Henriksen TB](#), [Rodriguez A](#), [Kotimaa A](#), [Moilanen I](#), [Thomsen PH](#), [Olsen J](#), [Jarvelin MR](#).  
[Am J Psychiatry](#).

# ATTACHMENT

Acta Psychiatr Scand. 2000 Oct;102(4):282-9.

## Predictive factors for borderline personality disorder: patients' early traumatic experiences and losses suffered by the attachment figure. The Italian Group for the Study of Dissociation.

Liotti G, Pasquini P.

APC School of Psychotherapy, Rome, Italy.

### Abstract

**OBJECTIVE:** To test the hypothesis that serious losses in the life of the attachment figure and patients' early traumatic experiences are risk factors for the development of borderline personality disorder.

**METHOD:** A multicentric hospital-based case-control study of 66 cases and 146 controls.

**RESULTS:** We estimated an odds ratio of 2.5 (95% CI 1.1-5.8) for mothers' serious losses experienced within 2 years of patients' birth and an odds ratio of 5.3 (95% CI 2.1-13) for patients' early traumatic experiences. Both of them are adjusted for the confounding effect of the other as well as for that of age, size of family and type of patient (in- or out-patient), using a multiple logistic function.

**CONCLUSION:** Mourning process in the mother within 2 years of the patient's birth and patients' early traumatic experiences are predictive factors for the development of borderline personality disorder.

Mourning process in the mother within 2 years of the patient's birth and patients' early traumatic experiences are predictive factors for the development of borderline personality disorder

# ADVERSE EVENTS

Eur Addict Res. 2009;15(4):202-8. Epub 2009 Aug 5.

## Parental divorce and adolescent drunkenness: role of socioeconomic position, psychological well-being and social support.

Tomcikova Z, Madarasova Geckova A, Orosova O, van Dijk JP, Reijneveld SA.

Kosice Institute for Society and Health, Faculty of Arts, PJ Safarik University, SK-04001 Kosice, Slovak Republic. tomcikova.zuzana@gmail.com

### Abstract

**BACKGROUND:** The aim of this cross-sectional study was to explore the association between parental divorce and adolescent drunkenness in the last 4 weeks and the contribution of socioeconomic position, family structure, social support from family and well-being to this association.

**METHODS:** We obtained data on 3,694 elementary school students from several cities in Slovakia (mean age 14.3, 49.0% males; response rate 93%). Respondents completed questionnaires on how often they had been drunk in the last 4 weeks, whether their parents were divorced, their socioeconomic position (education of parents, family affluence), the composition of the household (one or two parents/step-parents), social support from the family and their own well-being.

**RESULTS:** Parental divorce was found to have an effect on adolescent drunkenness in the last 4 weeks, as well as high socioeconomic position, low social support from the family and high depression/anxiety. The effect of divorce on drunkenness decreased only slightly after adding social support into the model.

**CONCLUSION:** Our findings indicate that parental divorce has a persistent influence on risk behavior independent of the influence of socioeconomic position and well-being. Parental divorce may increase the likelihood of drunkenness more than other factors such as low parental support and poor socioeconomic position.

Our findings indicate that parental divorce has a persistent influence on risk behavior independent of the influence of socioeconomic position and well-being.

# PUBERTY

J Youth Adolesc. 2010 Dec;39(12):1402-16. Epub 2009 Dec 6.

## Negotiating the early developing body: pubertal timing, body weight, and adolescent girls' substance use.

Tanner-Smith EE

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### Abstract

Despite knowledge that early pubertal timing predicts adolescent girls' substance use, it is still unclear whether this relationship persists beyond early adolescence and whether it is conditional on girls' body weight. This study examined the moderating role of body weight in the association between early pubertal timing and adolescent girls' substance use using three waves of data from the National Longitudinal Study of Adolescent Health. The analytic sample included 5,591 adolescent girls attending middle-schools and high-schools in the United States (ages 10-15, 71% White, 14% Black). Results indicated that early pubertal timing was associated with substance use risk but effects were attenuated after controlling for prior use. Body weight moderated the association between early pubertal timing and girls' reported number of substances tried in middle adolescence. Body weight magnified the risk of having tried one substance, but buffered the risk of having tried three substances. Among those girls who did use substances, body weight did not moderate the relationship between early pubertal timing and heavy substance use. It is concluded that the substance use risk associated with early pubertal timing is most salient during the developmental period in adolescence when sensitivity to bodily changes may be heightened.

It is concluded that the substance use risk associated with early pubertal timing

[Tanner-Smith EE](#)  
[J Youth Adolesc.](#)

# TEMPERAMENT

Brain Res. 2011 Jan 31;1371:32-42. Epub 2010 Nov 29.

**Individual differences in local gray and white matter volumes reflect differences in temperament and character: a voxel-based morphometry study in healthy young females.**

Van Schuerbeek P, Baeken C, De Raedt R, De Mey J, Luyckaert R.

Department of Radiology, UZ Brussel, Vrije Universiteit Brussel (VUB), Laarbeeklaan 101, 1090 Brussels, Belgium. Peter.VanSchuerbeek@uzbrussel.be

## Abstract

The psychobiological personality model of Cloninger distinguishes four heritable temperament traits (harm avoidance (HA), novelty seeking (NS), reward dependence (RD) and persistence (P)) and three character traits (self-directedness (SD), cooperativeness (CO) and self-transcendence (ST)) which develop during lifetime. Prior research already showed that individual differences in temperament are reflected in structural variances in specific brain areas. In this study, we used voxel-based morphometry (VBM) to correlate the different temperament and character traits with local gray and white matter volumes (GMV and WMV) in young healthy female volunteers. We found correlations between the temperament traits and GMV and WMV in the frontal, temporal and limbic regions involved in controlling and generating the corresponding behavior as proposed in Cloninger's theory: anxious for HA, impulsive for NS, reward-directed for RD and goal-directed for P. The character traits correlated with GMV and WMV in the frontal, temporal and limbic regions involved in the corresponding cognitive tasks: self-reflection for SD, mentalizing and empathizing with others for CO and religious belief for ST. This study shows that individual variations in brain morphology can be related to the temperament and character dimensions, and lends support to the hypothesis of a neurobiological basis of personality traits.

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in brain morphology  
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temperament and  
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[Van Schuerbeek P](#) [Baeken C](#) [De Raedt R](#) [De Mey J](#) [Luyckaert R](#)

[Brain Res.](#)