

## Emerging Trends in Emerging Adults: Adolescent Brain Development and the Law

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Andrew Charroux  
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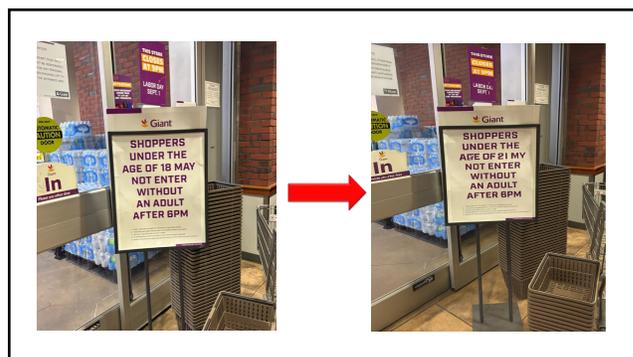
## Agenda

- 1) Adolescent and emerging adult brain development
- 2) Brief review of key SCOTUS case law
- 3) State case law developments
- 4) *Washington v. Monchke*
- 5) Lived experience
- 6) Q & A

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## Juvenile and Emerging Adult Brain Development

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Compared to Adults, Adolescents...



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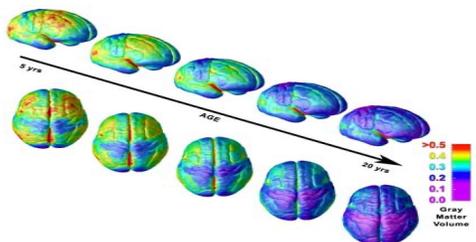
TLDR

Adolescent and late adolescent brains are different from adult brains



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Changes in Grey Matter Volume



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White Matter Development

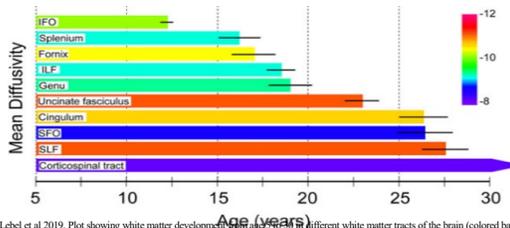
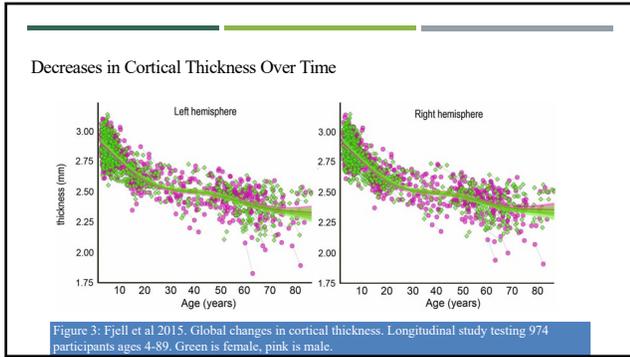
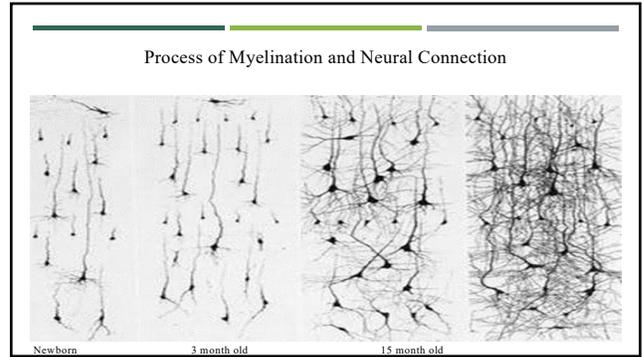


Figure 4: Lebel et al 2019. Plot showing white matter development over age for various different white matter tracts of the brain (colored bars). Decreases in mean diffusivity provide an approximation of strengthening white matter connections. The end of each bar represents the age at which the measure reaches 90% of its developmental plateau. IFO: inferior fronto-occipital fasciculus; ILF: inferior longitudinal fasciculus; SFO: superior fronto-occipital fasciculus; SLF: superior longitudinal fasciculus

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Teen Brain &  
Rewards /  
Emotions

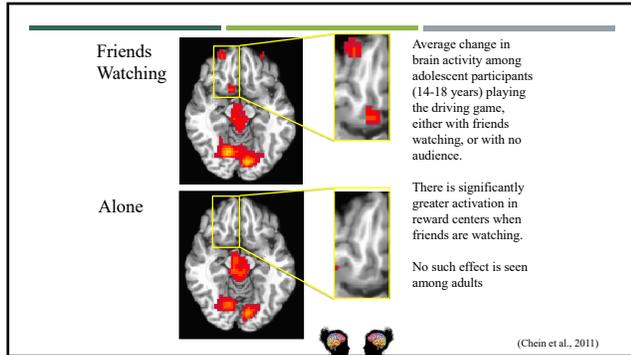
- Limbic system (e.g. striatum) overly developed/sensitive
- Prefrontal Cortex less developed
- Rewards/emotions outweigh “regulation” from the Prefrontal Cortex

Caption: FIGURE 3. A cartoon model of cortical neural circuit and functional areas (PFC) development. Brain development: limbic system (red) indicates greater regional signaling. Line represents functional connectivity and line indicating mature connections and dotted lines indicate immature connections. Adapted from Barronville LA, Casey BJ. Developmental maturation of the limbic system. In: Developmental neuropsychology, 2008, 24:8. Copyright 2010, with permission of Elsevier. 21

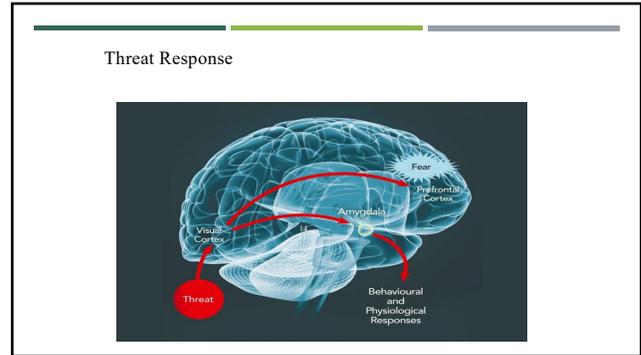
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- Adolescents are less likely than adults to:
- Identify and/or consider likely future consequences of their actions
  - Plan ahead beyond the very short term
  - Control impulses or resist peer influences
  - Move beyond the immediacy of perceived reward/gain
  - Simultaneously consider the risks and rewards of a decision

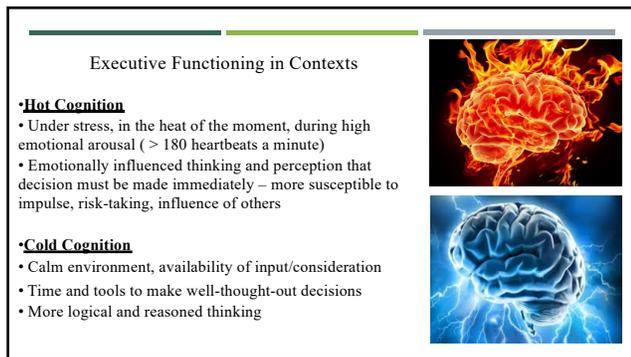
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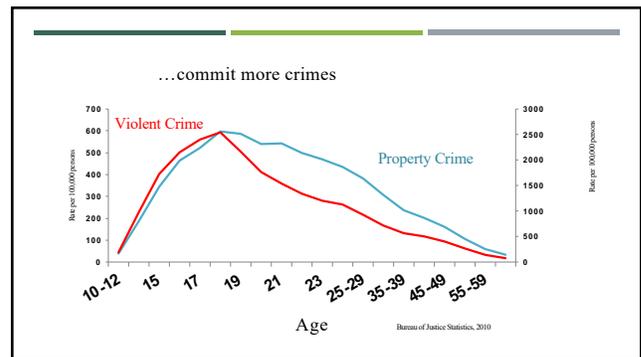
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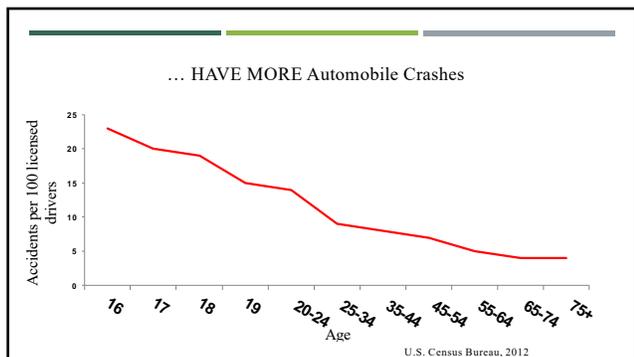
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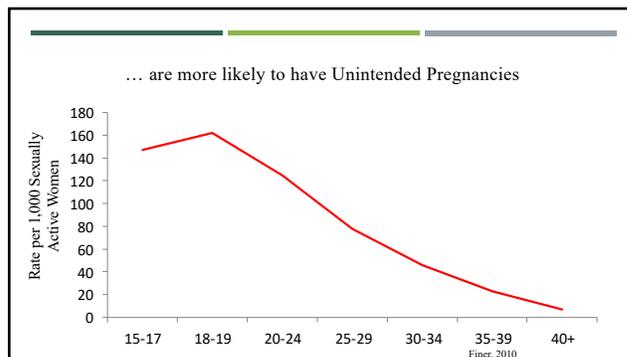
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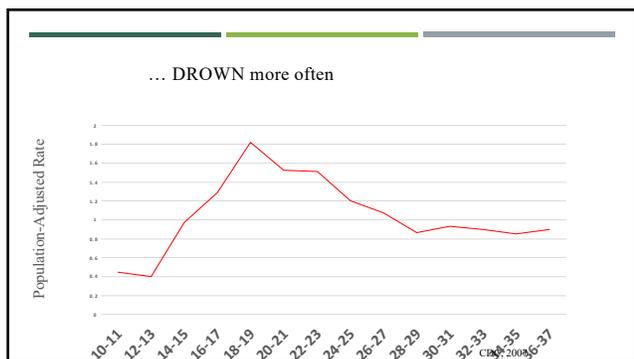
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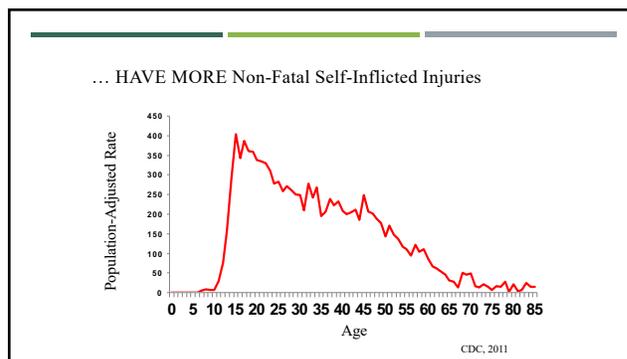
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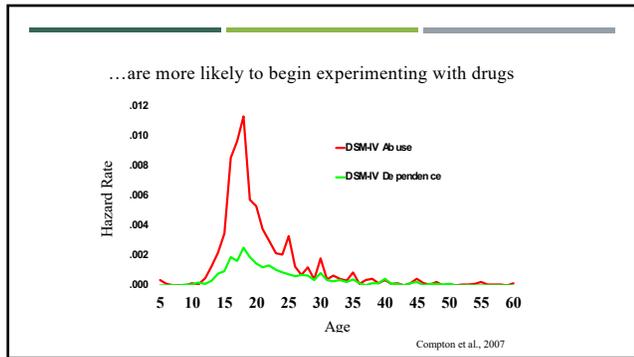
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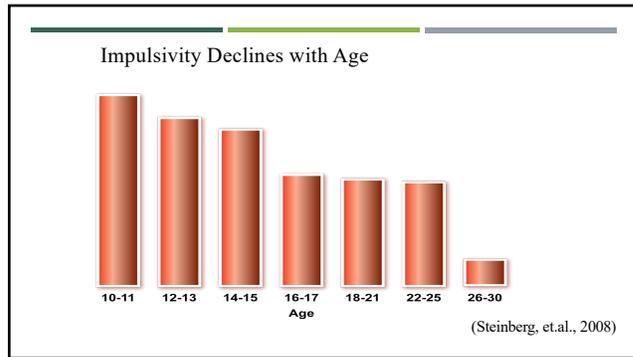
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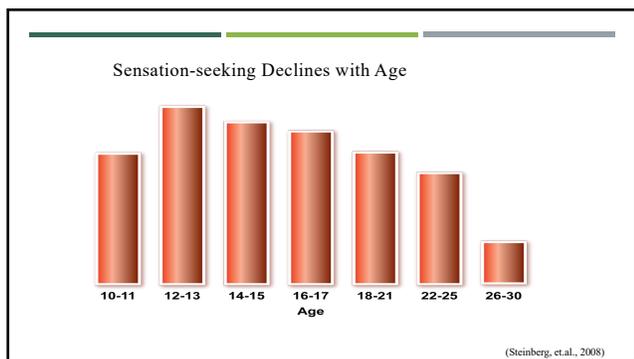
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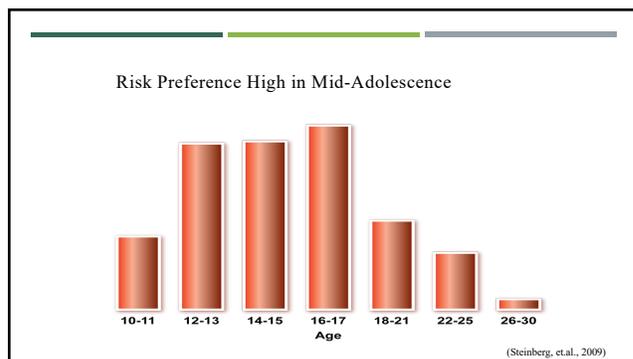
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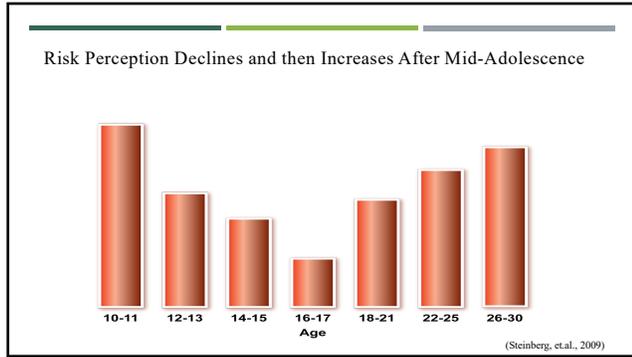
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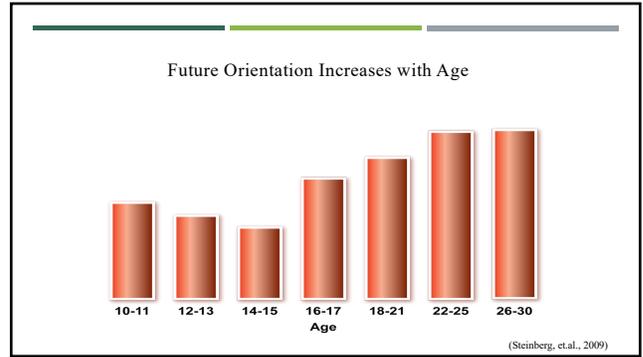
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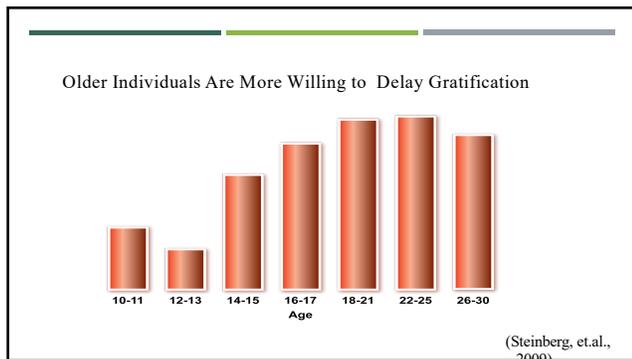
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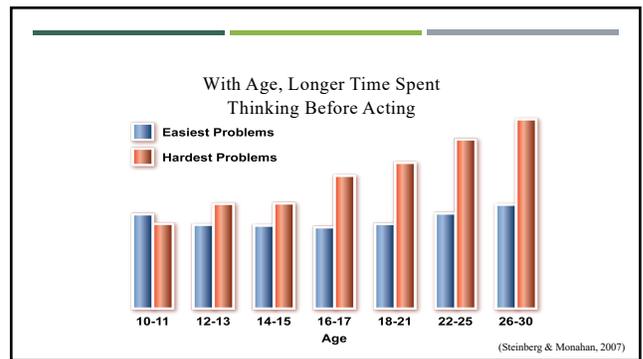
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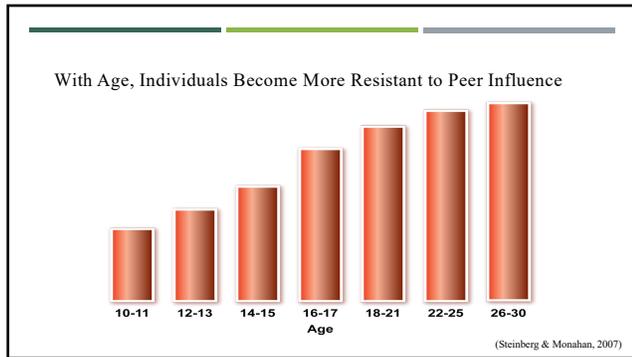
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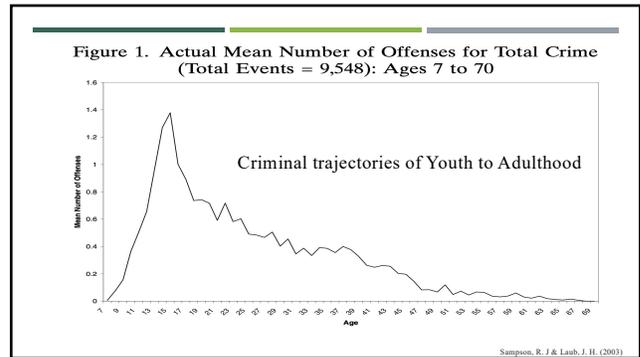
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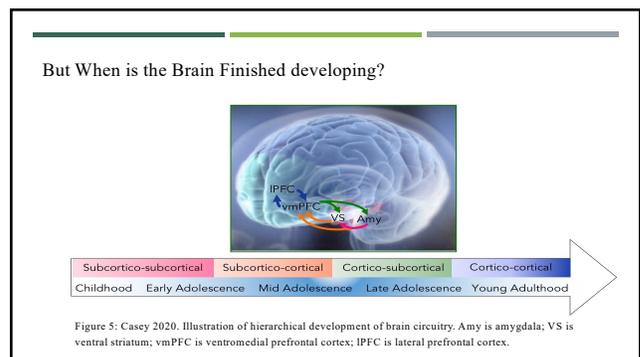
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Criminal Trajectories of Youth to Adulthood

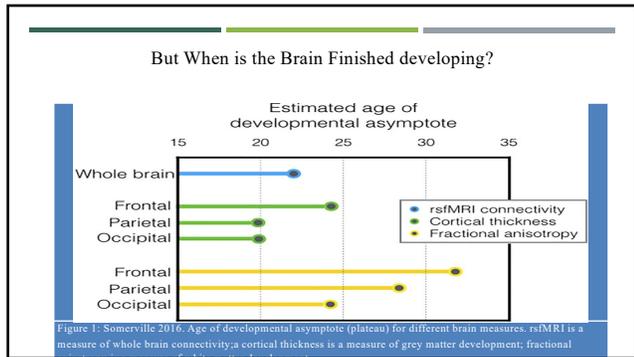
**“We conclude that desistance processes are at work even among active offenders and predicted life-course persisters, and that childhood prognoses account poorly for long-term trajectories of offending”**

Sampson, R. J & Laub, J. H. (2003)

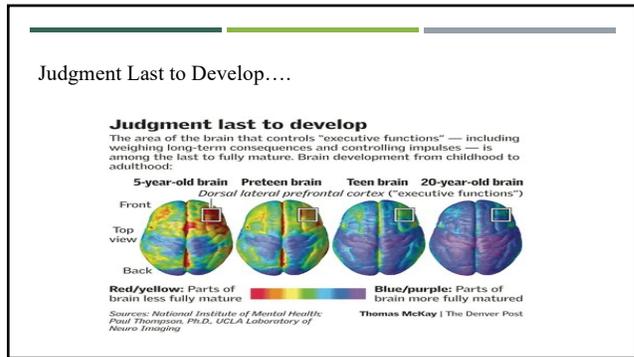
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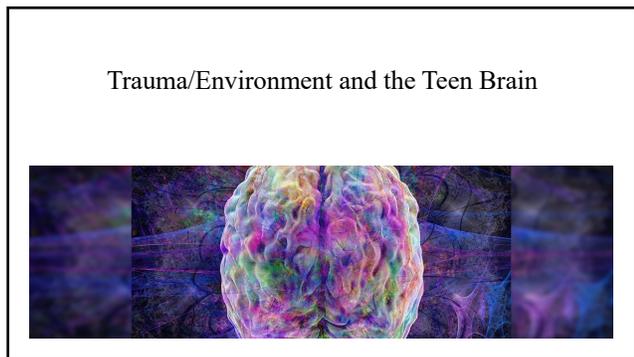
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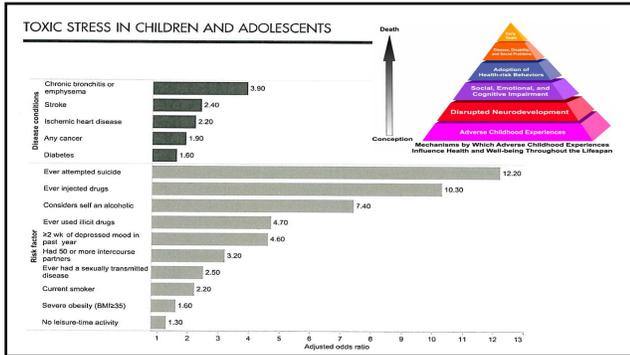
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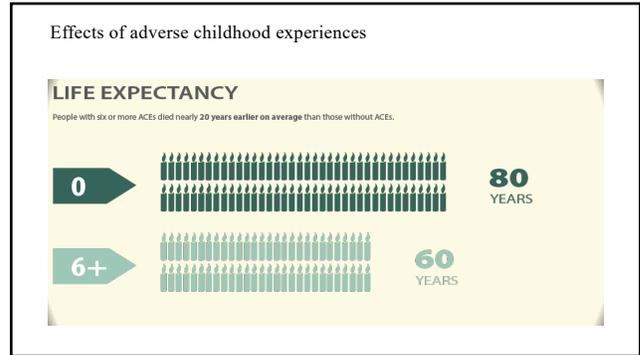
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Effect on brain from toxic stress			
Brain area	Function	Neuronal impact of toxic stress	Behavioral consequence
<b>Amygdala</b>	<ul style="list-style-type: none"> <li>Brain "alarm"</li> <li>Responsible for emotional memory</li> <li>Generates aggressive or impulsive behaviors to protect the body</li> </ul>	Amygdala gets bigger	<ul style="list-style-type: none"> <li>Aggressive behavior with minimal threat</li> <li>Impulsivity that can mimic ADHD</li> </ul>
<b>Hippocampus</b>	<ul style="list-style-type: none"> <li>Brain "search engine"</li> <li>Allows brain to access information from other brain centers</li> <li>Role in learning and memory</li> </ul>	Limits neuronal formation (normally neuron formation in hippocampus occurs throughout lifespan)	<ul style="list-style-type: none"> <li>Protective effect of some amnesia about prior trauma</li> <li>Limits learning</li> <li>Negatively impacts educational achievement</li> </ul>
<b>Prefrontal cortex</b>	<ul style="list-style-type: none"> <li>Suppressing impulses and emotion generated by amygdala, hippocampus and other limbic structures</li> <li>Executive function                             <ul style="list-style-type: none"> <li>Impulse control</li> <li>Working memory</li> <li>Cognitive flexibility</li> </ul> </li> </ul>	Slows connections between nerve cells	<ul style="list-style-type: none"> <li>Limited ability to suppress aggression</li> <li>Limits ability to think through consequences of actions</li> <li>Can look like ADHD, aggression or oppositional defiant disorder</li> </ul>

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### What Does It All Mean?

- Adolescence is a time characterized by a socio-emotional system that is easily aroused and highly sensitive to social feedback
- Reward-seeking increases when peers are present
- Less able or likely to:
  - control impulses
  - resist pressure from peers
  - think ahead
- More driven by the thrill of rewards
- We have a good understanding of the neurobiological underpinnings of these qualities

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### To summarize the neuroscience, it is like .....

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SCOTUS  
Case Law

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Children In a Distinct Category



“Children are **constitutionally different** from adults in their levels of culpability.”

*(Miller v. Alabama, 2012)*

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Children In a Distinct Category

*J.D.B. v. North Carolina*  
(2011)

“So long as the child’s age was known to the officer at the time of police questioning, or would have been objectively apparent to any reasonable officer, its inclusion in the custody analysis is consistent with the objective nature of the test.”

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*Roper v. Simmons* (2005):  
Barred execution for juveniles as a class

- “**Developments in psychology and brain science** continue to show fundamental differences between juvenile and adult minds. For example, parts of the *brain involved in behavior control continue to mature through late adolescence.*”
- Greater possibility exists that a minor’s character deficiencies will be reformed.

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*Graham v. Florida* (2010):  
Barred life without parole for non-homicides for juveniles

- “Scientific and sociological studies”
- “Lack of maturity” “*Impetuous and ill-considered actions and decisions*”
- “Adolescents are overrepresented statistically in virtually every category of *reckless behavior*.”

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*Miller v. Alabama* (2012):  
Barred mandatory life without parole for juveniles for homicide

- “[A]n ever-growing body of research in **developmental psychology and neuroscience** continues to confirm and strengthen the Court’s conclusions”  
“It is increasingly clear that adolescent **brains are not yet fully mature** in regions and systems related to higher-order executive functions such as impulse control, planning ahead, and risk avoidance.” (citations omitted)
- “**Numerous studies** post-Graham indicate that exposure to deviant peers leads to increased deviant behavior and is a consistent predictor of adolescent delinquency.” (citations omitted)

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*Jones v. Mississippi*  
(2021)

- Life without parole sentence for juveniles only require consideration of youth as a mitigating factor.
- (No science)

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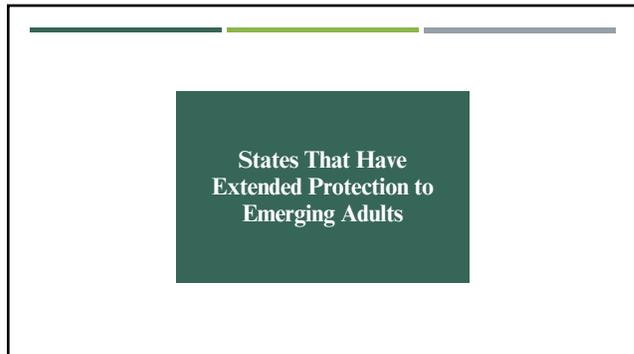
**“Miller-Fix” Statutes**

- In response to *Miller*, many states created “*Miller-fix*” statutes:
  - Intended to bring state sentencing practices in line with *Miller*
  - Different states took different approaches, creating “*Miller-fix* hearings” in some states to consider *Miller* factors
  - *Jones* affirmed less robust *Miller-fix* hearing requiring only consideration of youthfulness rather than proof of incorrigibility or outright ban of JLWOP

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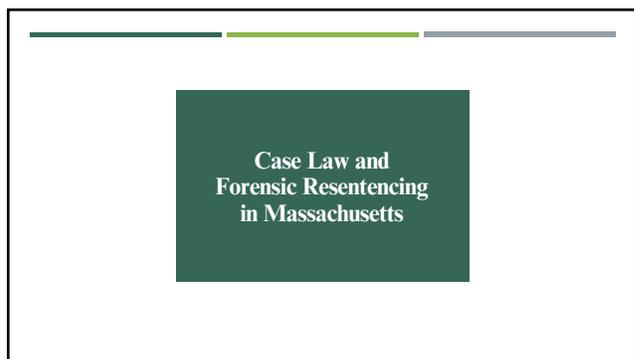
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**Precursor to *Mattis*: *Diatchenko I***  
(Massachusetts Supreme Judicial Court, 2013)

- “The imposition of a sentence of life in prison without the possibility of parole for the commission of murder in the first degree by a juvenile under the age of eighteen is disproportionate not with respect to the offense itself, **but with regard to the particular offender**” (emphasis added).

*Diatchenko I*, 466 Mass. at 669 (2013)

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***Diatchenko I***  
(2013)

- Decision rested on the recognition that juveniles are “constitutionally different from adults for purposes of sentencing”.
- However, the decision did not use science to draw the line between childhood and adulthood - rather, it relied on societies’ prefixed line of 18.

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***Diatchenko* Paved the Way for *Mattis***

- *Diatchenko* aligned Massachusetts with the U.S. Supreme Court’s decision in *Miller*.
  - Importantly, it applied the Miller principle as a categorical ban of LWOP under the state constitution for persons under the age of 18.
- *Mattis* extended the same constitutional ban on mandatory LWOP to 18-, 19-, and 20-year-olds (“emerging adults”).

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**MASS. SUPREME  
JUDICIAL COURT RULES  
ADULTS YOUNGER THAN  
21 CANNOT BE  
SENTENCED TO LIFE  
WITHOUT PAROLE**

WHAT DOES THIS  
MEAN?

**CFJ** Center for Family Justice

***Commonwealth v. Mattis***  
(Massachusetts Supreme  
Judicial Court, 2024)

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**Commonwealth v. Mattis**  
(Mass. SJC, 2024)

- Banned LWOP for 18- to 21-year-olds: “based on precedent and contemporary standards of decency in the Commonwealth and elsewhere.”
- “When it comes to determining whether a punishment is constitutional under either the Eighth Amendment to the United States Constitution or art. 26 of the Massachusetts Declaration of Rights, **youth matters.**”

*Mattis*, 493 Mass. at 217

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**Commonwealth v. Mattis**  
(Mass. SJC, 2024)

“Specifically, the scientific record strongly supports the contention that emerging adults have **the same core neurological characteristics** as juveniles have.

As the Superior Court judge noted, ‘Today, **neuroscientists and behavioral psychologists** know significantly more about the structure and function of the brains of [eighteen] through [twenty year olds] than they did [twenty] years ago.’

This is the result of years of targeted research and greater access to relatively new and **sophisticated brain imaging** techniques, such as structural magnetic resonance imaging (sMRI) and functional magnetic resonance imaging (fMRI).”

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**Commonwealth v. Mattis**  
(Mass. SJC, 2024)

“The judge made four core findings of fact regarding the science of emerging adult brains: emerging adults

- (1) have a lack of impulse control similar to sixteen and seventeen year olds in emotionally arousing situations,
- (2) are more prone to risk taking in pursuit of rewards than those under eighteen years and those over twenty-one years,
- (3) are more susceptible to peer influence than individuals over twenty-one years, and
- (4) have a greater capacity for change than older individuals due to the plasticity of their brains. The driving forces behind these behavioral differences are the anatomical and physiological differences between the brains of emerging and older adults.”

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**Commonwealth v. Mattis** (Mass. SJC, 2024)

**Massachusetts’ Art. 26** Relied on *Diatchenko* “... [C]urrent scientific consensus regarding the characteristics of the class can help determine the contemporary standards of decency pertaining to that class. See *Diatchenko I*, 466 Mass. at 659-661, 669-671. See also *Miller*, 567 U.S. at 471-472 (“Our decisions rested not only on common sense ... but on science and social science as well”); *Graham, supra* at 68; *Roper, supra* at 569-570; *Commonwealth v. Okoro*, 471 Mass. 51, 60 (2015) (“the determination that youth are constitutionally distinct from adults for sentencing purposes has strong roots in recent developments in the fields of science and social science”).

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**Study Relied Upon in *Mattis***

**Steinberg, A Social Neuroscience Perspective on Adolescent Risk-Taking, 28 Developmental Rev. 78, 82-84, 85-89 (2008)**

**A Social Neuroscience Perspective on Adolescent Risk-Taking**

Laurence Steinberg  
Department of Psychology, Temple University.

**Abstract**

This article proposes a framework for theory and research on risk-taking that is informed by developmental neuroscience. Two fundamental questions motivate this review. First, why does risk-taking increase between childhood and adolescence? Second, why does risk-taking decline between adolescence and adulthood? Risk-taking increases between childhood and adolescence as a result of changes around the time of puberty in the brain's socio-emotional system leading to increased reward-seeking, especially in the presence of peers, fueled mainly by a dramatic remodeling of the brain's dopaminergic system. Risk-taking declines between adolescence and adulthood because of changes in the brain's cognitive control system – changes which improve individuals' capacity for self-regulation. These changes occur across adolescence and young adulthood and are seen in structural and functional changes within the prefrontal cortex and its connections to other brain regions. The differing timetables of these changes make mid-adolescence a time of heightened vulnerability to risky and reckless behavior.

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**Study Relied Upon in *Mattis***

“In summary, there is strong evidence that the pubertal transition is associated with a **substantial increase in sensation-seeking** that is likely due to changes in reward salience and reward sensitivity resulting from a biologically-driven remodeling of dopaminergic pathways in what I have called the socio-emotional brain system. This neural transformation is accompanied by a **significant increase in oxytocin receptors**, also within the socio-emotional system, which in turn heightens adolescents’ attentiveness to, and memory for, social information. As a consequence of these changes, relative to prepubertal individuals, adolescents who have gone through puberty are **more inclined to take risks in order to gain rewards, an inclination that is exacerbated by the presence of peers.**”

**Steinberg, A Social Neuroscience Perspective on Adolescent Risk-Taking, 28 Developmental Rev. 78, 82-84, 85-89 (2008)**

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**And so...**

*Mattis* made Massachusetts the first state in the country to ban LWOP for 18 – 21 year olds



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**Rhode Island: “Mario’s Law” (Youthful Offender Act)**

- **2021:** Rhode Island passed the Youthful Offender Act, allowing individuals sentenced for **any offense before age 22** to seek parole after 20 years, except those serving LWOP.
- **2024:** Rhode Island Supreme Court affirmed that individuals **sentenced before turning 22** (“emerging adults”) have the **right to parole review after 20 years**, regardless of multiple consecutive sentences in *Mario Monteiro v. State of Rhode Island* (No. 2023-167-M.P. (PM 23-921)).

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### Michigan Supreme Court, 2022-2025

#### *People v. Parks (2022)*

- Mandatory LWOP for 18-year-olds is **unconstitutional** under Michigan’s ban on “cruel or unusual punishment.”

#### *People v. Czarnecki; People v. Taylor (2025)*

- “Late adolescents who are 19 or 20 years old, as a class, share with 18-year-olds **the same mitigating characteristics of late-adolescent brain development.**”; **objective, undisputed scientific research**
- “**the scientific research relied on by the Parks Court applied equally to 19- and 20-year-old individuals**”

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### Hawaii’s Ban on LWOP

“The purpose of this Act is to prohibit life without parole sentences for emerging adult defendants between eighteen and twenty-one years of age.”



Enacted by the Legislature of the State of Hawaii on June 3, 2025

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### United States Supreme Court

*“The qualities that distinguish juveniles from adults do not disappear when an individual turns 18.”*

Justice Kennedy, *Roper v. Simons*

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Recidivism Data  
Post-*Miller*

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### 2025 Pennsylvania Study Outcomes

- Tracked **287 individuals** formerly sentenced to life without parole for **juvenile homicide convictions in PA** who were later resentenced and released under *Miller* and *Montgomery*.
- **5.2% (15 of 287)** were charged with a misdemeanor or felony.
- **Most new charges were non-violent:**
  - 6 were *contact offenses*
  - 4 were *drug-related*
  - 3 were *weapons charges*
  - 2 were *property crimes*

J Res Adoles. 2025 Mar;35(1):12989. doi:10.1111/jra.12989. Epub 2024 Jun 6.

Life after life: Recidivism among individuals formerly sentenced to mandatory juvenile life without parole

Colleen Stegler<sup>1</sup>, Correy Simmons<sup>2</sup>, Grace Isenogle<sup>3</sup>, Marissa Leveck<sup>4</sup>, Monica Peniche<sup>5</sup>, Jordan Beardslee<sup>6</sup>, Eileen Cauffman<sup>7</sup>

Shoglia, C., Simmons, C., Isenogle, G., Leveck, M., Peniche, M., Beardslee, J., & Cauffman, E. (2025). Life after life: Recidivism among individuals formerly sentenced to mandatory juvenile life without parole. *Journal of Research on Adolescence*, 35(1), e12989

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### 2022 Philadelphia Study Outcomes

- Study of **112 individuals** released in Philadelphia after serving life sentences for **juvenile homicide convictions**.
- Reentry outcomes were highly successful:
  - 81%** secured stable housing
  - 75%** were employed at least part-time
  - 100%** reconnected with family

**A First Look at the Reentry Experiences of Juvenile Lifers Released in Philadelphia**

Tanika Daffary-Kapur, Tina M. Zottoli, Tristin Faust, Ryan Schneider

Justice Studies, Psychology

Daffary-Kapur, T., Zottoli, T. M., Faust, T., & Schneider, R. (2022). A first look at the reentry experiences of juvenile lifers released in Philadelphia. *Psychology, Public Policy, and Law*, 28(3), 400–413. <https://doi.org/10.1037/law0000344>.

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### 2023 California Study Outcomes

**125 individuals** sentenced to life without parole and later released through legal reforms or commutations between 2011 and 2019 in California.

- 3.2% (4 individuals) were convicted within three years.
  - 1 felony offense
  - 1 drug/alcohol misdemeanor
  - 2 minor, non-violent misdemeanors
- Community reintegration outcomes:
  - 94% volunteered regularly
  - 84% provided financial support to others
  - 90% were employed (full- or part-time)
  - 43% worked in the nonprofit sector

Leavell, A. (2023). "I Just Want to Give Back": The Reintegration of People Sentenced to Life Without Parole. *Human Rights Watch*.

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### 2023 California Study Outcomes

Contributing to Community

70%

said they have stepped into a healthy adult role in the life of a young person

84%

reported financially assisting other people since being released from prison.

94%

reported volunteering with charities, community organizations, or nonprofit organizations since release.

Leavell, A. (2023). "I Just Want to Give Back": The Reintegration of People Sentenced to Life Without Parole. *Human Rights Watch*.

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**The CLBB NeuroLaw Library**  
 Center for Law, Brain & Behavior at Massachusetts General Hospital  
 and Harvard Medical School

[www.clbbneurolawlibrary.com](http://www.clbbneurolawlibrary.com)





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Convert reading into action

[View Resource Library](#)

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[www.clbbneurolawlibrary.com](http://www.clbbneurolawlibrary.com)

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**Overview**

- **Free and open-access**
- Includes: resource library, educational courses, neurolaw dictionary, and toolkits for attorneys and litigants
- Accurate and applicable neuroscience for science-informed judicial outcomes
- For use across legal spectrum
  - Defense attorneys, prosecutors, judges, probation and parole officers, advocates, students, incarcerated persons, or their families and friends

[www.clbbneurolawlibrary.com](http://www.clbbneurolawlibrary.com)

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**Modules**

Completed Modules:  
 Juvenile and Emerging Adult Justice

Upcoming Modules:  
 Addiction and the Law  
 Aging Brains/Elder Fraud Prevention  
 Trauma, Memory and Asylum Law  
 Sentencing Reform




[www.clbbneurolawlibrary.com](http://www.clbbneurolawlibrary.com)

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### Neuroscience Resource Library

Currently includes:

- 800+ Scholarly articles
- 500+ Amicus Briefs
- 200+ Cases

The screenshot shows a website interface for the Neuroscience Resource Library. It features a search bar at the top, followed by a sidebar with filters for 'Amicus Briefs', 'Cases', and 'Scholarly Articles'. The main content area displays a grid of legal cases with titles like 'People v. Ralston', 'People v. Yhanze', 'People v. Walker', 'Watson v. Illinois', 'Estrada-Huerta v. People', 'Armstrong v. People', 'Lucero v. People', and 'Martinez v. United States of America'. Each case entry includes a brief description and keywords.

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### Amicus Briefs

AI-mediated comprehension down to the sixth grade reading level

The screenshot shows a document titled 'Amicus Briefs' with the text 'AI-mediated comprehension down to the sixth grade reading level'. On the right, there is a legal document titled 'BRIEF FOR AMICUS CURIAE FAIR PUNISHMENT PROJECT IN SUPPORT OF PETITIONER'. The document lists 'TIMOTHY S. WILLBANKS, Petitioner' and 'MISSOURI DEPT OF CORRECTIONS, Respondent'. It also lists 'LEDALE NATHAN, Petitioner' and 'STATE OF MISSOURI, Respondent'. The document is for a 'PETITION FOR A WRIT OF HABEAS CORPUS TO THE SUPREME COURT OF MISSOURI'. At the bottom, it lists attorneys: RONALD SULLIVAN, JUSTIN M. SHEP, PAUL PUNISHMENT PROJECT, and COURTNEY DE ROYCE, along with their respective law schools and addresses.

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### Educational Courses

11 lessons on various aspects of juvenile justice and adolescent development

Lessons include:

- Educational videos
- Relevant articles, briefs, cases
- Additional resources

The screenshot shows an educational course page titled 'Understanding Adolescence in the Legal System'. It features a grid of four images representing different lessons: 'Lesson 1: Biological Adolescence', 'Lesson 2: Social Factors', 'Lesson 3: Criminal Delinquency', and 'Lesson 4: Working with Juvenile Courts'. The page also includes a list of resources and a link to 'www.clbbneurolawlibrary.com'.

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The contact information page includes logos for the Center for Law, Brain & Behavior (CLBB), Massachusetts General Hospital, Harvard Medical School, and The Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics at Harvard Law School.

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