Nos. 10-9646, 10-9647

IN THE

# Supreme Court of the United States

EVAN MILLER,
*Petitioner*,
*v.*
STATE OF ALABAMA,
*Respondent.*

KUNTRELL JACKSON,
*Petitioner*,
*v.*
RAY HOBBS,
*Respondent.*

ON WRITS OF CERTIORARI TO THE ALABAMA COURT OF CRIMINAL APPEALS AND THE ARKANSAS SUPREME COURT

## BRIEF FOR THE AMERICAN PSYCHOLOGICAL ASSOCIATION, AMERICAN PSYCHIATRIC ASSOCIATION, AND NATIONAL ASSOCIATION OF SOCIAL WORKERS AS AMICI CURIAE IN SUPPORT OF PETITIONERS


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## INTEREST OF AMICI CURIAE[1]

The American Psychological Association is a voluntary nonprofit scientific and professional organization with more than 150,000 members and affiliates. Since 1892, the Association has been the principal organization of psychologists in the United States. Its membership includes the vast majority of U.S. psychologists holding doctoral degrees from accredited universities.[2]

An integral part of the Association's mission is to increase and disseminate knowledge regarding human behavior and to advance psychology as a science, profession, and means of promoting health, education, and human welfare. Based on the well-developed body of research distinguishing the developmental characteristics of juveniles from those of adults, the Association has endorsed the policy reflected in the United Nations Convention on the Rights of the Child, which rejects life imprisonment without possibility of parole for offenses committed by individuals under 18 years of age.

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[1] The parties have consented to the filing of this brief. Pursuant to Rule 37.3(a), letters of consent are on file with the Clerk of the Court. No counsel for a party authored this brief in whole or in part, and no person, other than amici curiae, their members, and their counsel, made a monetary contribution to the preparation or submission of this brief.

[2] Amici acknowledge the assistance of Elizabeth Cauffman, Ph.D., Thomas Grisso, Ph.D., Terrie Moffitt, Ph.D., Laurence Steinberg, Ph.D., and Jennifer Woolard, Ph.D., in the preparation of this brief.

Research cited in this brief includes data from studies conducted using the scientific method. Such research typically is subject to critical review by outside experts, usually during the peer-review process preceding publication in a scholarly journal.

The American Psychiatric Association, with roughly 35,000 members, is the principal association of physicians who specialize in psychiatry. It has an interest in this Court's understanding of the lessons of scientific study and professional experience as the Court applies constitutional principles to individuals who often are patients of the organization's members.

The National Association of Social Workers (NASW) is the largest association of professional social workers in the world, with nearly 145,000 members and 56 chapters throughout the United States and abroad. NASW conducts research, publishes books and studies, promulgates professional criteria, and develops policy statements on relevant issues of importance. NASW opposes any legislation or prosecutorial discretion permitting children to be charged and punished under adult standards.

## INTRODUCTION AND SUMMARY OF ARGUMENT

In *Graham* v. *Florida*, 130 S. Ct. 2011 (2010), this Court held that the Eighth Amendment prohibited life sentences without the possibility of parole for juveniles convicted of non-homicide offenses. The special characteristics of juveniles that this Court identified in *Graham*—and that are supported by a large and growing body of research—apply equally to juveniles convicted of homicide offences.

In *Graham*, this Court reiterated the critical differences between juveniles and adults that it set out in *Roper* v. *Simmons*, 543 U.S. 551 (2005)—differences that do not absolve juveniles of responsibility for their crimes, but that do reduce their culpability and undermine any justification for definitively ending their free lives. The Court noted that juveniles lack adults' ca-

pacity for mature judgment; that they are more vulnerable to negative external influences; and that their characters are not yet fully formed. *Graham*, 130 S. Ct. at 2026-2027; *Roper*, 543 U.S. at 569-570, 573. "The susceptibility of juveniles to immature and irresponsible behavior means 'their irresponsible conduct is not as morally reprehensible as that of an adult.'" *Roper*, 543 U.S. at 570. Juveniles' vulnerability and lack of control over their surroundings "mean juveniles have a greater claim than adults to be forgiven for failing to escape negative influences in their … environment." *Id.* And "[j]uveniles are more capable of change than are adults," meaning that "their actions are less likely to be evidence of 'irretrievably depraved character,'" even in the case of very serious crimes. *Graham*, 130 S. Ct. at 2026-2027; *see Roper*, 543 U.S. at 570. Accordingly, "[t]he juvenile should not be deprived of the opportunity to achieve maturity of judgment and self-recognition of human worth and potential"—with "no chance to leave prison before life's end"—because "[m]aturity can lead to that considered reflection which is the foundation for remorse, renewal, and rehabilitation." *Graham*, 130 S. Ct. at 2032.

As was true in *Graham*, "[n]o recent data provide reason to reconsider the Court's observations in *Roper* about the nature of juveniles." 130 S. Ct. at 2026. Rather, "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds." *Id.* In fact, an ever-growing body of research in developmental psychology and neuroscience continues to confirm and strengthen the Court's conclusions. Compared to adults, juveniles are less able to restrain their impulses and exercise self-control; less capable of considering alternative courses of action and avoiding unduly risky behaviors; and less

oriented to the future and thus less attentive to the consequences of their often-impulsive actions. Research also continues to demonstrate that "juveniles are more vulnerable or susceptible to negative influences and outside pressures, including peer pressure," while at the same time they lack the freedom and autonomy that adults possess to escape such pressures. *Roper*, 543 U.S. at 569. Thus, even after their general cognitive abilities approximate those of adults, juveniles are less capable than adults of mature judgment and decision-making, especially in the social contexts in which criminal behavior is most likely to arise.

Moreover, because juveniles are still in the process of forming coherent identities, adolescent crime often reflects the "signature"—and transient—"qualities of youth" itself, *Roper*, 543 U.S. at 570, rather than an entrenched bad character. Research into adolescent development continues to confirm the law's intuition that "'incorrigibility is inconsistent with youth.'" *Graham*, 130 S. Ct. at 2029. And although some youthful offenders will develop into criminal adults, it remains essentially impossible "even for expert psychologists to differentiate between the juvenile offender whose crime reflects unfortunate yet transient immaturity, and the rare juvenile offender whose crime reflects irreparable corruption." *Roper*, 543 U.S. at 573. As *Roper* recognized, that is true even of juvenile offenders who have committed the most serious crimes.

Recent neuroscience research suggests a possible physiological basis for these recognized developmental characteristics of adolescence. 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. That anatomical and functional immaturity is con-

sonant with juveniles' demonstrated psychosocial (that is, social and emotional) immaturity. During puberty, juveniles evince a rapid increase in reward- and sensation-seeking behavior that declines progressively throughout late adolescence and young adulthood. This effect is amplified by exposure to peers, and it corresponds with significant changes in certain elements of the brain's "incentive processing system"—especially the parts that process rewards and social cues. By contrast, the ability to resist emotional impulses and regulate behavior develops gradually throughout adolescence, and that behavioral development corresponds with gradual development of the brain structures and systems most involved in executive function and impulse control. The disjunction between these developmental processes—which is greatest in early and middle adolescence and narrows as individuals mature into young adulthood—is consistent with the familiar features of adolescence that this Court recognized in *Roper* and *Graham*.

In short, research continues to confirm and expand upon the fundamental insight underlying this Court's previous decisions: Juveniles' profound differences from adults undermine the possible penological justifications for punishing a juvenile offender with a sentence that "guarantees he will die in prison without any meaningful opportunity to obtain release." *Graham*, 130 S. Ct. at 2033. Nor does the scientific literature provide any reason to distinguish between homicide and non-homicide convictions in this regard. In either case, the signature qualities of adolescence reduce juveniles' culpability and increase their capacity for change. Condemning an immature, vulnerable, and not-yet-fully-formed adolescent to live every remaining day of his life in prison—whatever his crime—is thus a constitutionally disproportionate punishment.

## ARGUMENT

### I. RESEARCH IN DEVELOPMENTAL PSYCHOLOGY AND NEUROSCIENCE DOCUMENTS JUVENILES' GREATER IMMATURITY, VULNERABILITY, AND CHANGEABILITY

In *Roper* and *Graham*, this Court concluded that "marked and well understood" developmental differences between juveniles and adults both diminish juveniles' blameworthiness for their criminal acts and enhance their prospects of change and reform.[3] *Roper*, 543 U.S. at 572. Current research continues to reinforce that conclusion, confirming that the three developmental characteristics of juveniles that this Court has identified—their immaturity, their vulnerability, and their changeability—render them, as a group, very different from adults. As this Court has recognized, those differences are central to the calculus of culpability and the proportionality of punishments imposed on juvenile offenders.

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[3] We use the terms "juvenile" and "adolescent" interchangeably to refer to individuals aged 12 to 17. Science cannot, of course, draw bright lines precisely demarcating the boundaries between childhood, adolescence, and adulthood; the "qualities that distinguish juveniles from adults do not disappear when an individual turns 18." *Roper*, 543 U.S. at 574. Likewise, younger adolescents differ in some respects from 16- and 17-year-olds. Nonetheless, because adolescents generally share certain developmental characteristics that mitigate their culpability, and because "the age of 18 is the point where society draws the line for many purposes between childhood and adulthood," this Court's decisions have recognized age 18 as a relevant demarcation point. *Graham*, 130 S. Ct. at 2030; *see Roper*, 543 U.S. at 574. The research discussed in this brief accordingly applies to adolescents under age 18, including older adolescents, unless otherwise noted.

### A. Juveniles Are Less Capable Of Mature Judgment Than Adults

As this Court has recognized, adolescents have less capacity for mature judgment than adults, and as a result are more likely to engage in risky behaviors. "[A]s any parent knows and as … scientific and sociological studies … tend to confirm, '[a] lack of maturity and an underdeveloped sense of responsibility are found in youth more often than in adults and are more understandable among the young. These qualities often result in impetuous and ill-considered actions and decisions.'" *Roper*, 543 U.S. at 569.

As this Court noted in *Roper*, "'adolescents are overrepresented statistically in virtually every category of reckless behavior.'" 543 U.S. at 569. Indeed, such behavior is "virtually a normative characteristic of adolescent development."[4] Juveniles' risky behavior frequently includes criminal activity; in fact, "numerous rigorous self-report studies have … documented that it is statistically aberrant to refrain from crime during adolescence."[5] Both violent crimes and less serious offenses "peak sharply" in adolescence and "drop precipi-

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[4] Jeffrey Arnett, *Reckless Behavior in Adolescence: A Developmental Perspective*, 12 Developmental Rev. 339, 344 (1992).

[5] Terrie Moffitt, *Adolescent-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy*, 100 Psychol. Rev. 674, 685-686 (1993). Moffitt posits that there are two groups of adolescent offenders who may engage in similar antisocial behavior: a majority whose offending is limited to adolescence, and a minority who will persist into adulthood.

tously in young adulthood."[6] This "age-crime curve" is "[o]ne of the most consistent findings across studies."[7]

Adolescents' striking tendency to engage in risky and even illegal behavior stems in part from their lesser capacity for mature judgment. Research has shown that adolescents' judgment and decision-making differ from adults' in several respects: Adolescents are less able to control their impulses; they weigh the risks and rewards of possible conduct differently; and they are less able to envision the future and apprehend the consequences of their actions. Even older adolescents who have developed general cognitive capacities similar to those of adults show deficits in these aspects of social and emotional maturity.[8]

1. Empirical research confirms that adolescents are less capable of self-regulation than adults and, accordingly, are less able to resist their social and emotional impulses. For example, one study of maturity of judgment found that adolescents, including 17-year-olds, scored significantly lower than adults on measures of "temperance," which included "impulse control" and

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[6] *Id.* at 675 & fig. 1 (depicting age-crime curve with steep peak in late adolescence); Arnett, *supra* note 4, at 343; Terrie Moffitt, *Natural Histories of Delinquency*, in *Cross-National Longitudinal Research on Human Development and Criminal Behavior* 3, 29 (Elmar Weitekamp & Hans-Jürgen Kerner eds., 1994).

[7] Rolf Loeber et al., *Violence and Serious Theft* 77 (2008); *see also* Moffitt, *supra* note 6, at 7; Kathryn Monahan et al., *Trajectories of Antisocial Behavior and Psychosocial Maturity from Adolescence to Young Adulthood*, 45 Developmental Psychol. 1654, 1654 (2009).

[8] Laurence Steinberg, *Adolescent Development and Juvenile Justice*, 5 Ann. Rev. Clinical Psychol. 47, 55-56 (2008).

"suppression of aggression."[9] More recent studies confirm this result. In one example, researchers examined differences in impulsivity between ages 10 and 30, using both self-report and performance measures, and concluded that impulsivity declined throughout the relevant period, with "gains in impulse control occur[ring] throughout adolescence" and into young adulthood.[10] In short, "adults tend to make more adaptive decisions than adolescents," in part because "they have a more mature capacity to resist the pull of social and emotional influences and remain focused on long-term goals."[11]

As explained below, *infra* pp. 25-31, researchers have an increasingly well-developed understanding of aspects of the adolescent brain that may help explain this relative deficit in mature self-control. It is now well-established that the brain continues to develop throughout adolescence and young adulthood in precisely the areas and systems that are regarded as most

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[9] Elizabeth Cauffman & Laurence Steinberg, *(Im)maturity of Judgment in Adolescence*, 18 Behav. Sci. & L. 741, 748-749, 754 & tbl. 4 (2000).

[10] Laurence Steinberg et al., *Age Differences in Sensation Seeking and Impulsivity as Indexed by Behavior and Self-Report*, 44 Developmental Psychol. 1764, 1774-1776 (2008).

[11] Dustin Albert & Laurence Steinberg, *Judgment and Decision Making in Adolescence*, 21 J. Research on Adolescence 211, 220 (2011); *see also* Adriana Galvan et al., *Risk Taking and the Adolescent Brain*, 10 Developmental Sci. F8, F13 (2007) (finding, in study of individuals aged 7 to 29, that impulse control continues to develop throughout adolescence and early adulthood); Rotem Leshem & Joseph Glicksohn, *The Construct of Impulsivity Revisited*, 43 Personality & Individual Differences 681, 684-686 (2007) (reporting significant decline in impulsivity from ages 14-16 to 20-22).

involved in impulse control, planning, and self-regulation. But juveniles also lack experience navigating the changing social and environmental contexts, and regulating the new emotional pressures, of adolescence. *See Roper*, 543 U.S. at 569. "[T]he developing adolescent can only learn his or her way to fully developed control by experience," and that "process will probably not be completed until very late in the teen years."[12] Thus, "expecting the experience-based ability to resist impulses … to be fully formed prior to age eighteen or nineteen would seem on present evidence to be wishful thinking."[13]

2. Adolescents not only struggle to regulate their behavior in response to their emotional impulses, but also respond differently to perceptions of risk and reward. "In general, adolescents use a risk-reward calculus that places relatively less weight on risk, in relation to reward, than that used by adults."[14] For example, one study comparing adolescent and adult decision-making found that, when asked to evaluate hypothetical decisions, adolescents as old as 17 were less likely

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[12] Franklin Zimring, *Penal Proportionality for the Young Offender*, in *Youth on Trial* 271, 280 (Thomas Grisso & Robert Schwartz eds., 2000).

[13] *Id.* at 282.

[14] Laurence Steinberg & Elizabeth Scott, *Less Guilty by Reason of Adolescence: Developmental Immaturity, Diminished Responsibility, and the Juvenile Death Penalty*, 58 Am. Psychologist 1009, 1012 (2003); *see* Arnett, *supra* note 4, at 350-353 (summarizing evidence that adolescent recklessness relates to poor "probability reasoning"); Susan Millstein & Bonnie Halpern-Felsher, *Perceptions of Risk and Vulnerability*, in *Adolescent Risk and Vulnerability* 15, 34-35 (Baruch Fischoff et al. eds., 2001).

than adults to mention possible long-term consequences, to evaluate both risks and benefits, and to examine possible alternative options.[15] Similarly, a recent study that employed a gambling task to measure reward-seeking and risk-avoidance behavior in a group of more than 900 individuals aged 10 to 30 found that "adolescents and adults evince[d] significantly different patterns of approach [*i.e.*, reward-seeking] and avoidance [*i.e.*, risk-averse] behavior."[16] Whereas adolescents improved their performance over time by being drawn to the bets with the best rewards, adults improved by avoiding bets with the worst losses. The authors concluded that the "present study, as well as previous work, demonstrates that decision making … improves throughout adolescence and into young adulthood but that this improvement may be due not to cognitive maturation but to changes in affective processing. Whereas adolescents may attend more to the potential rewards of a risky decision than to the potential costs, adults tend to consider both, even weighing costs more than rewards."[17]

Similarly, adolescents are particularly attuned to *immediate* rewards, and display much steeper "tempo-

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[15] Bonnie Halpern-Felsher & Elizabeth Cauffman, *Costs and Benefits of a Decision: Decision-Making Competence in Adolescents and Adults*, 22 J. Applied Developmental Psychol. 257, 265, 268 (2001). Even greater differences prevailed between adults and younger adolescents. *See id. at* 268.

[16] Elizabeth Cauffman et al., *Age Differences in Affective Decision Making as Indexed by Performance on the Iowa Gambling Task*, 46 Developmental Psychol. 193, 204 (2010).

[17] *Id.* at 204, 206.

ral discounting" than adults.[18] Juveniles are emotionally primed for spur-of-the-moment, reward- and sensation-seeking behavior without offsetting, adult sensitivities to corresponding risks and longer-term consequences. Indeed, studies have shown that perceptions of reward, not risk, are better predictors of adolescent antisocial behaviors.[19] This less mature weighing of risk and reward renders adolescents more likely to engage in criminal activity, as well as other kinds of risk-taking.[20]

3. Finally, juveniles differ from adults in their ability to foresee and take into account the consequences of their behavior. By definition, adolescents have less life experience on which to draw, making it less likely that they will fully apprehend the potential negative consequences of their actions.[21] Moreover, adolescents are less able than adults to envision and plan for the future, a capacity still developing during adolescence.[22] The study of maturity of judgment discussed above found

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[18] Laurence Steinberg et al., *Age Differences in Future Orientation and Delay Discounting*, 80 Child Dev. 28, 39 (2009); Steinberg, *supra* note 8, at 58.

[19] Louk Peters et al., *A Review of Similarities Between Domain-Specific Determinants of Four Health Behaviors Among Adolescents*, 24 Health Educ. Research 198, 216 (2009).

[20] Arnett, *supra* note 4, at 344, 350-351 (relating skewed adolescent risk- and reward-perception to fact that 50% or more of adolescents report drunk driving, unprotected sex, illegal drug use, or some form of criminal activity).

[21] *Id.* at 351-352; Zimring, *supra* note 12, at 280.

[22] *See* Jari-Erik Nurmi, *How Do Adolescents See Their Future? A Review of the Development of Future Orientation and Planning*, 11 Developmental Rev. 1, 28-29 (1991); Steinberg et al., *supra* note 18, at 35-36.

that adolescents' future orientation is weaker than adults': Comparing over 1,000 subjects, it found that even 17-year-olds scored lower than adults on measures of "perspective," which encompassed "the ability to see short and long term consequences," as well as the ability to "take other people's perspectives into account."[23] Similarly, studies have shown that, among 15- to 17-year-olds, realism in thinking about the future increases with age, and that the skills required for future planning continue to develop until the early 20s.[24]

The ability to resist and control emotional impulses, to gauge risks and benefits in an adult manner, and to envision the future consequences of one's actions—even in the face of environmental or peer pressures—are critical components of social and emotional maturity, necessary in order to make mature, fully considered decisions. Empirical research confirms that even older adolescents have not fully developed these abilities and hence lack an adult's capacity for mature judgment. "[I]t is clear that important progress in the development of [social and emotional maturity] occurs sometime during late adolescence, and that these changes have a profound effect on the ability to make consistently mature decisions."[25]

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[23] Cauffman & Steinberg, *supra* note 9, at 746, 748, 754 & tbl. 4.

[24] Nurmi, *supra* note 22, at 28-29; *see* Steinberg et al., *supra* note 18, at 35-36.

[25] Cauffman & Steinberg, *supra* note 9, at 741, 756, 758 (noting that the most dramatic increase in psychosocial maturity occurs between ages 16 and 19); *see* Halpern-Felsher & Cauffman, *supra* note 15, at 271 ("[I]mportant progress in the development of decision-making competence occurs sometime during late adolescence[.]").

It should be noted that multiple abilities contribute to mature judgment, and those abilities develop at different rates. Sound judgment requires both cognitive and psychosocial skills, but the former mature earlier than the latter. Studies of general cognitive capability show an increase from pre-adolescence until about age 16, when gains begin to plateau.[26] By contrast, social and emotional maturity continue to develop throughout adolescence. Thus, older adolescents (aged 16-17) often have logical reasoning skills that approximate those of adults, but nonetheless lack the adult capacities to exercise self-restraint, to weigh risk and reward appropriately, and to envision the future that are just as critical to mature judgment,[27] especially in emotionally charged settings.[28] Younger adolescents are thus doubly disadvantaged, because they typically lack not only those social and emotional skills but basic cognitive capabilities as well.[29]

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[26] *See, e.g.*, Thomas Grisso et al., *Juveniles' Competence to Stand Trial*, 27 Law & Hum. Behav. 333, 343-344 (2003) (16- to 17-year-olds did not differ from 18- to 24-year-old adults but performed significantly better than 14- to 15-year-olds on test of basic cognitive abilities); Daniel Keating, *Cognitive and Brain Development*, in *Handbook of Adolescent Psychology* 45, 64 (Richard Lerner & Laurence Steinberg eds., 2d ed. 2004) (cognitive functions exhibit robust growth at earlier ages but approach a limit in the 14- to 16-year-old group).

[27] Cauffman & Steinberg, *supra* note 9, at 743-745; Halpern-Felsher & Cauffman, *supra* note 15, at 264-271; Steinberg, *supra* note 8, at 55-59.

[28] Albert & Steinberg, *supra* note 11, at 216-220.

[29] The dissent in *Roper* criticized the American Psychological Association for taking allegedly inconsistent positions regarding adolescent maturity with respect to severe criminal sanctions for

### B. Juveniles Are More Vulnerable To Negative External Influences

As this Court has also recognized, "juveniles are more vulnerable … to negative influences and outside pressures, including peer pressure." *Roper*, 543 U.S. at 569. Because of their developmental immaturity, adolescents are more susceptible than adults to the negative influences of their environment, and their actions are shaped directly by family and peers in ways that adults' are not. "Adolescents are dependent on living circumstances of their parents and families and hence are vulnerable to the impact of conditions well beyond their control."[30] Difficult family and neighborhood conditions are major risk factors for juvenile crime, includ-

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juveniles (in *Roper*) and the competence of minor females to obtain abortions absent parental notification (in *Hodgson* v. *Minnesota*, 497 U.S. 417 (1990)). *See* 543 U.S. at 617-618 (Scalia, J., dissenting). These are different questions concerning distinct aspects of mature judgment. *Hodgson* addressed *competence* to make medical decisions that can be made in a relatively unhurried manner in consultation with medical professionals, and the Association's brief thus focused on adolescents' *cognitive* abilities, which approximate those of adults by mid-adolescence. The questions presented in *Roper*, *Graham*, and this case concern the degree of *culpability* and *reformability* of adolescents who commit criminal acts that often evince impulsivity and ill-considered choices resulting from *psychosocial* immaturity. *See* Laurence Steinberg et al., *Are Adolescents Less Mature Than Adults? Minors' Access to Abortion, the Juvenile Death Penalty, and the Alleged APA "Flip-Flop,"* 64 Am. Psychologist 583, 592-593 (2009); Elizabeth Scott et al., *Evaluating Adolescent Decision Making in Legal Contexts*, 19 Law & Hum. Behav. 221, 226-235 (1995).

[30] Alan Kazdin, *Adolescent Development, Mental Disorders, and Decision Making of Delinquent Youths*, in *Youth on Trial*, *supra* note 12, at 47.

ing homicide.[31] Yet, precisely because of their legal minority, juveniles lack the freedom to remove themselves from those negative external influences. Put simply, juveniles lack the control over themselves and their lives that adults possess, mitigating their blameworthiness for remaining in destructive or "'criminogenic'" situations. *Roper*, 543 U.S. at 569.

Juveniles are also especially vulnerable to the negative influence of peer pressure. Research has shown that susceptibility to peer pressure to engage in antisocial behavior increases between childhood and early adolescence, peaks at around age 14, and then declines slowly during the late adolescent years, with relatively little change after age 18.[32] For instance, one major study found that exposure to peers during a risk-taking task doubled the amount of risky behavior among mid-adolescents (with a mean age of 14), increased it by 50 percent among college undergraduates (with a mean age of 19), and had no impact at all among

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[31] *Id.* at 47-48; *see* Rolf Loeber & David Farrington, *Young Homicide Offenders and Victims: Risk Factors, Prediction, and Prevention from Childhood* 61 & tbl. 4.1 (2011) (noting high likelihood that homicide offenders came from broken family or bad neighborhood); Jeffrey Fagan, *Contexts of Choice by Adolescents in Criminal Event*s, in *Youth on Trial*, *supra* note 12, at 372, 389-391.

[32] Elizabeth Scott & Laurence Steinberg, *Rethinking Juvenile Justice* 38 (2008); Thomas Berndt, *Developmental Changes in Conformity to Peers and Parents*, 15 Developmental Psychol. 608, 612, 615-616 (1979); Laurence Steinberg & Susan Silverberg, *The Vicissitudes of Autonomy in Early Adolescence*, 57 Child Dev. 841, 848 (1986); Fagan, *supra* note 31, at 382-384 (discussing coercive effect of social context on adolescents).

young adults.[33] "[T]he presence of peers makes adolescents and youth, but not adults, more likely to take risks and more likely to make risky decisions."[34]

This study was recently replicated using fMRI technology, allowing researchers to measure variations in the activation of different brain areas under different experimental conditions. Because of technological constraints, the "peer pressure" variable was limited to manipulating whether test subjects were observed by peers or not while performing the task. Strikingly, mere awareness that peers were watching encouraged risky behavior among juveniles, but not adults.[35] The neuroimaging also showed different activation in different brain areas across the experimental variables. Adults showed significantly greater activation in brain regions involved in executive functions and the regulation of impulses, whether or not they were being observed by peers. By contrast, adolescents showed significantly greater activation in brain areas associated with reward processing when they were told that their peers were watching than when they were not being observed.[36]

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[33] Margo Gardner & Laurence Steinberg, *Peer Influence on Risk Taking, Risk Preference, and Risky Decision Making in Adolescence and Adulthood*, 41 Developmental Psychol. 625, 626-634 (2005).

[34] *Id.* at 634; *see* Laurence Steinberg & Kathryn Monahan, *Age Differences in Resistance to Peer Influence*, 43 Developmental Psychol. 1531, 1538 (2007) (same).

[35] Jason Chein et al., *Peers Increase Adolescent Risk Taking By Enhancing Activity in the Brain's Reward Circuitry*, 14 Developmental Sci. F1, F7 (2011).

[36] *Id.* at F5-F8.

Juveniles' lesser ability to resist peer influence affects their judgment both directly and indirectly. "In some contexts, adolescents might make choices in response to direct peer pressure, as when they are coerced to take risks that they might otherwise avoid. More indirectly, adolescents' desire for peer approval, and consequent fear of rejection, affect their choices even without direct coercion. The increased salience of peers in adolescence likely makes approval-seeking especially important in group situations."[37]

Adolescents are thus more likely than adults to engage in antisocial behavior in order to conform to peer expectations or achieve respect and status among their peers.[38] Not surprisingly, juvenile crime is significantly correlated with exposure to delinquent peers,[39] and adolescents are "far more likely than adults to commit crimes in groups."[40] "No matter the crime, if a teenager is the offender, he is usually not committing the offense alone."[41] Indeed, "[m]ost adolescent decisions to break the law take place on a social stage where the immediate pressure of peers is the real motive."[42] "A

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[37] Scott & Steinberg, *supra* note 32, at 38-39; *see also* Moffitt, *supra* note 5, at 686; Zimring, *supra* note 12, at 280-281.

[38] *See* Moffitt, *supra* note 5, at 686.

[39] *See id.* at 687-688.

[40] Scott & Steinberg, *supra* note 32, at 39.

[41] Zimring, *supra* note 12, at 281; *see* Joan McCord & Kevin Conway, *Co-Offending and Patterns of Juvenile Crime* 5 (2005) (finding that "[c]o-offending violence increased throughout adolescence").

[42] Zimring, *supra* note 12, at 280.

necessary condition for an adolescent to stay law-abiding is the ability to deflect or resist peer-pressure," a social skill that is not fully developed in adolescents.[43]

In short, as this Court has observed, "youth is more than a chronological fact. It is a time and condition of life when a person may be most susceptible to influence and to psychological damage." *Eddings* v. *Oklahoma*, 455 U.S. 104, 115 (1982). Because juveniles' developmental immaturity and legal minority render them both more susceptible to, and less capable of escaping, negative external pressures, they "have a greater claim than adults to be forgiven" for the criminal acts that result from such pressures. *Roper*, 543 U.S. at 570.

### C. Juveniles Have A Greater Capacity For Change And Reform

Finally, as this Court has recognized, "the character of a juvenile is not as well formed as that of an adult," and "[t]he personality traits of juveniles are more transitory, less fixed." *Roper*, 543 U.S. at 570. Accordingly, "[j]uveniles are more capable of change than are adults, and their actions are less likely to be evidence of 'irretrievably depraved character.'" *Graham*, 130 S. Ct. at 2026. A defining aspect of adolescence is that character is not yet fully formed, and adolescents' signature qualities—including their susceptibility to peer influence and weaknesses in self-regulation—reflect their incomplete identity or "sense of self." Thus, what may be perceived as fixed personality traits in juveniles may in fact result from malleable factors such as present maturity level or social

[43] *Id.* at 280-281.

context, rather than engrained or enduring aspects of personality or worldview. Research has shown that personality traits change significantly during the developmental transition from adolescence to adulthood,[44] and the process of identity-formation typically remains incomplete until at least the early twenties.[45] Juveniles are simply more likely than adults to change.

This Court recognized in *Roper* that because "juveniles still struggle to define their identity, … it is less supportable to conclude that even a heinous crime committed by a juvenile is evidence of irretrievably depraved character." 543 U.S. at 570. And it reaffirmed in *Graham* that "'from a moral standpoint it would be misguided to equate the failings of a minor with those of an adult, for a greater possibility exists that a minor's character deficiencies will be reformed.'" 130 S. Ct. at 2026-2027.

In fact, juveniles do typically outgrow their antisocial behavior as the "'impetuousness and recklessness'" of youth subside in adulthood. *Roper*, 543 U.S. at 570. Adolescent criminal conduct frequently results from

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[44] *See* Brent Roberts et al., *Patterns of Mean-Level Change in Personality Traits Across the Life Course*, 132 Psychol. Bull. 1, 14-15 (2006).

[45] *E.g.*, Alan Waterman, *Identity Development from Adolescence to Adulthood*, 18 Developmental Psychol. 341, 355 (1982) ("The most extensive advances in identity formation occur during the time spent in college."); Laurence Steinberg & Robert Schwartz, *Developmental Psychology Goes to Court*, in *Youth on Trial*, *supra* note 12, at 9, 27 ("[M]ost identity development takes place during the late teens and early twenties."); Scott & Steinberg, *supra* note 32, at 52 ("[C]oherent integration of … [identity] does not occur until late adolescence or early adulthood. … [T]he final stages of this process often occur during the college years.").

experimentation with risky behavior and not from deep-seated moral deficiency reflective of "bad" character.[46] For most juveniles, therefore, antisocial behavior will "'cease with maturity as individual identity becomes settled.'" *Id.* at 570. Only a small proportion of adolescents who experiment with illegal activities will develop an entrenched pattern of criminal behavior that persists into adulthood; "the vast majority of adolescents who engage in criminal or delinquent behavior desist from crime as they mature."[47]

As this Court has previously observed, moreover, even experts have no reliable way to predict whether a particular juvenile offender will continue to commit crimes as an adult. *See Roper*, 543 U.S. at 573. The positive predictive power of juvenile psychopathy assessments, for instance, remains poor. One study found that only 16% of young adolescents who scored in the top quintile on a juvenile psychopathy measure would eventually be assessed as psychopathic at age 24.[48] The authors concluded that "most individuals identified as psychopaths at age 13 will not receive such a diagnosis" as adults.[49] A recent study of 75 male juvenile offenders found that assessments of psychopathic characteris-

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[46] Moffitt, *supra* note 5, at 686, 690; *see also* Arnett, *supra* note 4, at 344, 366-367.

[47] Steinberg & Scott, *supra* note 14, at 1014-1015; *see also* Moffitt, *supra* note 5, at 685-686; Monahan et al., *supra* note 7, at 1654, 1655.

[48] Donald Lynam et al., *Longitudinal Evidence That Psychopathy Scores in Early Adolescence Predict Adult Psychopathy*, 116 J. Abnormal Psychol. 155, 160 (2007).

[49] *Id.* at 162.

tics did not predict general or violent reconvictions over a 10-year follow-up period.[50] And another recent study showed no correlation between a youthful homicide offense and the basic psychological measures of persistent antisocial personality such as "cruelty to people and callous-unemotional behavior."[51]

To be sure, research has identified certain childhood risk factors, or "predictors," that show a statistically significant association with adult criminality. But such studies do not suggest that anyone could reliably determine, *ex ante*, whether particular juvenile offenders will reoffend. To the contrary, the same research makes clear that such predictions cannot be made with any accuracy. Simply put, while many criminals may share certain childhood traits, the great majority of juvenile offenders with those traits will not be criminal adults. For example, a major longitudinal study of Pittsburgh inner-city boys successfully identified, *ex post*, childhood risk factors, including various forms of antisocial behavior and crime, that were correlated with future homicide convictions. But it also found that, even among the subgroup of boys with the greatest number of risk factors, only a small minority were eventually convicted of homicide: Using the authors' model to attempt to identify juveniles who would be future homicide offenders yielded a very high false positive rate of 87%.[52]

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[50] *See* John Edens & Melissa Cahill, *Psychopathy in Adolescence and Criminal Recidivism in Young Adulthood*, 14 Assessment 57, 60 (2007).

[51] Loeber & Farrington, *supra* note 31, at 158.

[52] *Id.* at 75.

In fact, researchers have consistently concluded that the behavior of juveniles who will and will not continue as criminal offenders through adulthood is "often indistinguishable during adolescence."[53] In first distinguishing between adolescence-limited and persistent offenders, researchers recognized that they could not "effectively assign individual delinquent adolescents to meaningful subtypes on the basis of … their antisocial behavior during adolescence."[54] And those who have dedicated their careers to identifying risk factors associated with persistent criminality continue to acknowledge that "[t]he results show very imperfect predictions of which offense trajectory individuals will follow over time," and to warn against the "danger that policy makers will start to use less than good predictions as a rationale for harsh punishments and severe legal sanctions."[55]

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[53] Monahan et al., *supra* note 7, at 1655; *see also, e.g.*, John Edens et al., *Assessment of "Juvenile Psychopathy" and Its Association with Violence*, 19 Behav. Sci. & L. 53, 59 (2001) (collecting evidence that psychopathy assessments may "tap construct-irrelevant variance associated with relatively *normative* and *temporary* characteristics of adolescence rather than deviant and stable personality features"); Edward Mulvey & Elizabeth Cauffman, *The Inherent Limits of Predicting School Violence*, 56 Am. Psychologist 797, 799 (2001) ("Assessing adolescents … presents the formidable challenge of trying to capture a rapidly changing process with few trustworthy markers."); Thomas Grisso, *Double Jeopardy: Adolescent Offenders with Mental Disorders* 64-65 (2004) (noting discontinuity and disappearance of mental disorders identified in adolescence).

[54] Moffitt, *supra* note 5, at 678.

[55] Loeber et al., *supra* note 7, at 333.

Moreover, it is just as difficult to predict future criminality among adolescents convicted of the most serious crimes.[56] A recent, major effort to identify risk factors for recidivism among serious adolescent offenders confirmed the "good news … that even within a sample … limited to those convicted of the most serious crimes, the percentage who continue to offend consistently at a high level is very small," while acknowledging the "bad news" that the ability to predict future criminality remains "exceedingly limited."[57] Most strikingly, when the homicide study discussed above limited its effort to predict future homicide offenses to boys who had already committed an act of violence, it "did not significantly improve predictive accuracy."[58] In fact, the false-positive rate *increased* from 87% to 89%.[59]

In sum, juveniles are still developing their character and identity, and it is quite likely that a juvenile of-

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[56] *See id.* (distinguishing, throughout, between serious and less serious forms of violence and theft).

[57] Edward Mulvey et al., *Trajectories of Desistance and Continuity in Antisocial Behavior Following Court Adjudication Among Serious Adolescent Offenders*, 22 Dev. & Psychopathology 453, 468-470 (2010); *see also* Monahan et al., *supra* note 7 (finding that only 6% of serious juvenile offenders persisted in high levels of antisocial behavior into adulthood).

[58] Loeber & Farrington, *supra* note 31, at 88.

[59] *Id.* at 89; *see also* Alex Piquero et al., *Violence in Criminal Careers: A Review of the Literature from a Developmental Life-Course Perspective*, Aggression & Violent Behav. (forthcoming 2012) (concluding that "most youths who become violent do so in adolescence and their violent involvement is limited to the late teen/early 20s" and that "attempt[ing] to correctly predict the violent recidivist is virtually impossible").

fender will desist from crime in adulthood. *See Roper*, 543 U.S. at 570. Juvenile crime is likely to be the product of the "signature qualities of youth," *id.*; there is no reliable way to determine that a juvenile's offenses are the result of an irredeemably corrupt character; and there is thus no reliable way to conclude that a juvenile—even one convicted of an extremely serious offense—should be sentenced to life in prison, without any opportunity to demonstrate change or reform.

### D. Juveniles' Psychosocial Immaturity Is Consistent With Recent Research Regarding Adolescent Brain Development

Neuroscientists continue to accumulate evidence that the adolescent brain is not yet fully developed in critical respects. By now, "[t]here is incontrovertible evidence of significant changes in brain structure and function during adolescence," and "[a]lthough most of this work has appeared just in the last 10 years, there is already strong consensus among developmental neuroscientists about the nature" of these changes.[60] While research continues into the precise meaning and effect of the changes in the brain during adolescence, they are consistent with and suggest the possible physiological basis for adolescents' observed psychosocial immaturity.

The most noteworthy features of adolescent brain development relate to changes occurring within the brain's frontal lobes—in particular the prefrontal cortex—and in the connections between the prefrontal

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[60] Laurence Steinberg, *Should the Science of Adolescent Brain Development Inform Public Policy?*, 64 Am. Psychologist 739, 742 (2009).

cortex and other brain structures. These areas and interconnections are critical to "executive" functions such as planning, motivation, judgment, and decision-making, including the evaluation of future consequences, the weighing of risk and reward, the perception and control of emotions, and the processing and inhibition of impulses.[61] Four related changes in these brain systems during adolescence merit special attention.

*First*, early adolescence (especially the period immediately after puberty) coincides with major changes in the "incentive processing system" of the brain involving neurotransmitters like dopamine.[62] "[R]eward-related regions of the brain and their neurocircuitry undergo particularly marked developmental changes

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[61] *E.g.*, Elkhonon Goldberg, *The Executive Brain: Frontal Lobes and the Civilized Mind* 23, 24, 141 (2001); B.J. Casey et al., *Structural and Functional Brain Development and its Relation to Cognitive Development*, 54 Biological Psychol. 241, 244-246 (2000); Elizabeth Sowell et al., In Vivo *Evidence for Post-Adolescent Brain Maturation in Frontal and Striatal Regions*, 2 Nature Neurosci. 859, 860 (1999); Antonio Damasio & Steven Anderson, *The Frontal Lobes*, in *Clinical Neuropsychology* 404, 434-435 (Kenneth Heilman & Edward Valenstein eds., 4th ed. 2003) (one "hallmark of frontal lobe dysfunction is difficulty making decisions that are in the long-term best interests" of the individual).

[62] *E.g.*, Chein et al., *supra* note 35, at F2; Linda Spear, *The Behavioral Neuroscience of Adolescence* 149-150 (2009); Dustin Wahlstrom et al., *Developmental Changes In Dopamine Neurotransmission in Adolescence: Behavioral Implications and Issues in Assessment*, 72 Brain & Cognition 146, 150-151 (2010); Monique Ernst et al., *Neurobiology of the Development of Motivated Behaviors in Adolescence: A Window into a Neural Systems Model*, 93 Pharmacology Biochem. & Behav. 199, 206-208 (2009); Albert & Steinberg, *supra* note 11, at 217.

during adolescence."[63] These pubertal changes are seen in other species, and "have been linked to changes in reward-directed activity" among adolescents, especially the willingness to engage in risky and socially motivated behaviors.[64] The observed spike in risk-taking, reward-seeking, and peer-influenced behaviors among adolescents correlates with this normal aspect of adolescent brain development.

*Second*, during childhood and early adolescence the brain undergoes substantial synaptic "pruning"—the paring away of unused synapses—leading to more efficient neural connections.[65] During adolescence, this pruning is more characteristic of the prefrontal cortex than other brain regions, consistent with the observation that adolescence is a time of marked improvement in executive functions.[66]

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[63] Tamara Doremus-Fitzwater et al., *Motivational Systems in Adolescence: Possible Implications for Age Differences in Substance Abuse and Other Risk-Taking Behaviors*, 72 Brain & Cognition 114, 116 (2010); Steinberg, *supra* note 60, at 743.

[64] Laurence Steinberg, *A Behavioral Scientist Looks at the Science of Adolescent Brain Development*, 72 Brain & Cognition 160, 161 (2010); Spear, *supra* note 62, at 18-19; Linda Van Leijenhorst et al., *What Motivates the Adolescent? Brain Regions Mediating Reward Sensitivity Across Adolescence*, 20 Cerebral Cortex 61, 67 (2010).

[65] Casey et al., *supra* note 61, at 242-243; Nitin Gogtay et al., *Dynamic Mapping of Human Cortical Development During Childhood Through Early Adulthood*, 101 Proc. Nat'l Acad. Sci. 8174, 8175 (2004); Spear, *supra* note 62, at 81-90; Peter Huttenlocher, *Neural Plasticity: The Effects of Environment on the Development of the Cerebral Cortex* 41, 46-47, 52-58, 67 (2002).

[66] *E.g.*, Nitin Gogtay & Paul Thompson, *Mapping Gray Matter Development*, 72 Brain & Cognition 6, 7 (2010); Neir Eshel et

*Third*, the adolescent brain undergoes substantial myelination, the process through which neural pathways are insulated with a white fatty tissue called myelin. That insulation "speeds … neural signal transmission," making "communication between different parts of the brain faster and more reliable."[67] "[M]yelination is ongoing well into late adolescence and early adulthood."[68] And this "improved connectivity within the prefrontal cortex is important for higher order functions subserved by multiple prefrontal areas, including many aspects of executive function, such as response inhibition, planning ahead, weighing risks and rewards, and the simultaneous consideration of multiple sources of information."[69]

*Fourth*, "well into late adolescence" there is "an increase in connections not only among cortical areas but between cortical and subcortical regions" that are "especially important for emotion regulation."[70] As the

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al., *Neural Substrates of Choice Selection in Adults and Adolescents*, 45 Neuropsychologia 1270, 1270-1271 (2007); Spear, *supra* note 62, at 87-90.

[67] Goldberg, *supra* note 61, at 144.

[68] Steinberg, *supra* note 60, at 743; *see* Rhoshel Lenroot et al., *Sexual Dimorphism of Brain Developmental Trajectories During Childhood and Adolescence*, 36 Neuroimage 1065, 1065 (2007).

[69] Steinberg, *supra* note 60, at 743*; see* Casey et al., *supra* note 61, at 245-246; Elizabeth Sowell et al., *Mapping Continued Brain Growth and Gray Matter Density Reduction in Dorsal Frontal Cortex: Inverse Relationships During Postadolescent Brain Maturation*, 21 J. Neurosci. 8819, 8828 (2001).

[70] Steinberg, *supra* note 60, at 743; Spear, *supra* note 62, at 119-120, 125-126; Thomas Eluvathingal et al., *Quantitative Diffusion Tensor Tractography of Association and Projection Fibers in*

brain matures, that self-regulation is "facilitated by the increased connectivity between regions important in the processing of emotional and social information and regions important in cognitive control processes."[71] This developmental pattern is consistent with adults' superior ability to make mature judgments about risk and reward, and to exercise cognitive control over their emotional impulses, especially in circumstances that adolescents would react to as socially charged.[72]

In short, the brain systems that govern many aspects of social and emotional maturity, such as impulse control, risk avoidance, planning ahead, and coordination of emotion and cognition, continue to mature throughout adolescence.[73] Importantly, these changes occur at different times, with the rapid, pubertal changes in the brain's incentive and social processing systems outpacing the slower, steadier, and later-occurring changes in areas related to executive function

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*Normally Developing Children and Adolescents*, 17 Cerebral Cortex 2760, 2763-2764 (2007).

[71] Steinberg, *supra* note 60, at 743; Leah Somerville et al., *A Time of Change: Behavioral and Neural Correlates of Adolescent Sensitivity to Appetitive and Aversive Environmental Cues*, 72 Brain & Cognition 124, 128-129 (2010) (noting importance of white-matter development and the "functional network [in] mediat[ing] the ability to exert control in the face of emotion").

[72] Chein et al., *supra* note 35, at F7-F8; Steinberg, *supra* note 64, at 162; Spear, *supra* note 62, at 121-126.

[73] *See, e.g.*, Eshel et al., *supra* note 66, at 1270-1271; Kathryn Modecki, *Addressing Gaps in the Maturity of Judgment Literature: Age Differences and Delinquency*, 32 Law & Hum. Behav. 78, 79-80 (2008); Steinberg et al., *supra* note 10, at 1765.

and self-control.[74] Indeed, studies have shown that the prefrontal cortex is among the last areas in the brain to mature fully.[75] These findings suggest a

> basic framework, articulated in slightly different versions by many writers … posit[ing] that middle adolescence is a time of heightened vulnerability to risky and reckless behavior because of the temporal disjunction between the rapid rise in dopaminergic activity around the time of puberty, which leads to an increase in reward-seeking, and the slower and more gradual maturation of the prefrontal cortex and its connections to other brain regions, which leads to improvements in cognitive control and in the coordination of affect and cognition. As dopaminergic activity declines from its early adolescent peak, and as self-regulatory systems become increasingly mature, risk-taking begins to decline.[76]

"From this perspective, middle adolescence (roughly 14-17) should be a period of especially heightened vulnerability to risky behavior, because sensation-seeking is high and self-regulation is still immature. And in fact, many risk behaviors follow this pattern, including unprotected sex, criminal behavior, attempted suicide, and reckless driving."[77]

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[74] Steinberg, *supra* note 64, at 161.

[75] Gogtay & Thompson, *supra* note 66, at 7; Casey et al., *supra* note 61, at 243; Spear, *supra* note 62, at 87-88.

[76] Steinberg, *supra* note 64, at 161; *see* Somerville et al., *supra* note 71, at 126-127.

[77] Steinberg, *supra* note 64, at 162.

Although the precise relationships between particular aspects of brain development and adolescent behavior continue to be studied, these findings regarding the neuroscience of adolescent development reinforce and expand upon the well-established behavioral findings discussed in *Roper* and *Graham*. They demonstrate that, even in late adolescence, important aspects of brain maturation remain incomplete. And those normal patterns of adolescent physiological development are correlated with the poor judgment and particular vulnerability to negative social influences that characterize adolescence and then subside in young adulthood. Unlike adults, juveniles may thus be expected to change as they age and their brains mature, evincing both fewer impulses toward reckless and criminal behavior and an increased ability to restrain such impulses.

## II. SENTENCING JUVENILES TO LIFELONG IMPRISONMENT WITH NO OPPORTUNITY TO DEMONSTRATE REFORM IS A DISPROPORTIONATE PUNISHMENT

In *Graham*, this Court determined that a sentence of life without parole for juvenile offenders convicted of non-homicide offenses was constitutionally disproportionate punishment for two related reasons—both of which are equally powerful as applied to juveniles convicted of homicide.

First, juveniles' immaturity, vulnerability, and changeability—while in no way excusing their crimes—substantially lessen their culpability and undermine any justification for definitively ending their free lives. *Graham*, 130 S. Ct. at 2026; *Roper*, 543 U.S. at 569-570. The Court thus reaffirmed in *Graham* that "from a moral standpoint it would be misguided to equate the failings of a minor with those of an adult." 130 S. Ct. at

2026-2027. At the same time, the Court recognized that "[l]ife without parole is an especially harsh punishment for a juvenile," because "a juvenile offender will on average serve more years and a greater percentage of his life in prison than an adult offender." *Id.* at 2028. "A 16-year-old and a 75-year-old each sentenced to life without parole receive the same punishment in name only." *Id.* In fact, a juvenile sentenced to life in custody not only serves a greater percentage of his life in prison, but suffers a unique deprivation: He will never experience adulthood—or the ability "to attain a mature understanding of his own humanity," *Roper*, 543 U.S. at 574—as a free person.

Sentences that foreclose any possibility of eventual release are thus particularly draconian for juveniles. Although adolescents can be expected to mature and reform as they age, such a sentence "means denial of hope; it means that good behavior and character improvement are immaterial; it means that whatever the future might hold in store for the mind and spirit of the convict, he will remain in prison for the rest of his days." *Graham*, 130 S. Ct. at 2027. Juvenile crimes are committed "while [the offender is] a child in the eyes of the law," *id.* at 2033, meaning that most juvenile offenders are sentenced to life imprisonment without ever having been initiated into such elementary aspects of adult society as voting, driving, marriage, parenthood, profession—even high-school graduation. For adolescent offenders, a sentence of "[l]ife in prison without the possibility of parole gives no chance for fulfillment outside prison walls, no chance for reconciliation with society, no hope." *Id.* at 2032. Given juveniles' reduced culpability and increased likelihood of reform, such a severe sanction—foreclosing any willingness even to consider release in the future—is mani-

festly disproportionate to the penological justifications for imposing it.

Neither this Court's precedent nor the research into adolescent development provides any reason why this analysis should be different in the case of juvenile homicide offenders. This Court first recognized the reduced culpability of adolescent offenders in the context of prohibiting the death penalty for juvenile homicide offenses, finding that even for older adolescents, and "even [for] a heinous crime," the immaturity, vulnerability, and changeability of juvenile offenders made it "less supportable to conclude that … [a] crime committed by a juvenile is evidence of irretrievably depraved character." *Roper*, 543 U.S. at 570. To be sure, more serious crimes call for more serious punishments. But there is no reason why the reduction in culpability associated with adolescence should vary according to the severity of the offense. Indeed, the best available research indicates that even serious juvenile offenders are far more likely than not to desist from criminality as they mature, and that it is equally true of the most serious offenders that "expert psychologists [cannot] differentiate between the juvenile offender whose crime reflects unfortunate yet transient immaturity, and the rare juvenile offender whose crime reflects irreparable corruption." *Id.* at 573.[78]

Accordingly, the penological justifications for a sentence of life imprisonment without parole are weakened for juveniles who commit homicide, just as they are for other juvenile offenders. The retributive purpose of such a punishment is attenuated because "cul-

[78] *See supra* p. 24 & nn. 56-59.

pability or blameworthiness is diminished, to a substantial degree, by reason of youth and immaturity." *Roper*, 543 U.S. at 571. Likewise, the same characteristics of juveniles that render them less culpable—their impulsivity, rash decision-making, biased attention to anticipated immediate rewards rather than longer-term costs, and lesser ability to consider and evaluate the future consequences of their actions—substantially weaken the deterrence justification for such punishment. *Id.*[79] Life without parole will unquestionably incapacitate a juvenile offender, but the Court rightly noted in *Graham* that justifying "life without parole on the assumption that the juvenile offender forever will be a danger to society requires the sentencer to make a judgment that the juvenile is incorrigible," when "[t]he characteristics of juveniles make that judgment questionable." 130 S. Ct. 2029. And it is particularly inappropriate to "forswear[] altogether the rehabilitative ideal," *id.* at 2030, with respect to offenders who are far more likely than any others to reform as both their character and their physical brain structure mature into adulthood.

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[79] Indeed, empirical studies evaluating the deterrent effect of laws mandating that juvenile offenders be transferred to the adult criminal justice system for certain crimes have concluded that the threat of adult criminal sanctions had no measurable effect on juvenile crime. *E.g.*, Simon Singer & David McDowall, *Criminalizing Delinquency: The Deterrent Effects of the New York Juvenile Offender Law*, 22 Law & Soc'y Rev. 521, 526-532 (1988) (comparing juvenile arrest statistics before and after enactment of New York's transfer legislation and finding little measurable impact on serious juvenile crime); Eric Jensen & Linda Metsger, *A Test of the Deterrent Effect of Legislative Waiver on Violent Juvenile Crime*, 40 Crime & Delinq. 96, 100-102 (1994) (same for Idaho).

In short, this Court has recognized what research confirms: Adolescence is transitory, and juveniles change. Indeed, most adolescents who commit crimes will desist from criminal activity in adulthood. Because the adolescent self is not yet fully formed, there is no way reliably to conclude that an adolescent's crime is the expression of an entrenched and irredeemably malign character that might justify permanent incarceration. And, even in the case of the most serious offenses, there is no reliable way to distinguish the juvenile offender who might become a hardened criminal from the far more common offender whose crime is a product of the transient influences of adolescence itself. Sentencing a juvenile to life imprisonment "without any meaningful opportunity to obtain release, no matter what he might do to demonstrate that the bad acts he committed as a teenager are not representative of his true character, even if he spends the next half century attempting to atone for his crimes and learn from his mistakes," *Graham*, 130 S. Ct. at 2033, disregards entirely the signature characteristics of youth. And sentencing such an immature and less culpable juvenile to spend his entire adult life in prison, notwithstanding the likelihood that "[m]aturity can lead to … remorse, renewal, and rehabilitation," *id.* at 2032, is grossly disproportionate punishment.

## CONCLUSION

The judgments below should be reversed.

Respectfully submitted.

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