No. 10-9646 & No. 10-9647

IN THE
Supreme Court of the United States

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

KUNTRELL JACKSON,
Petitioner,
v.
STATE OF ARKANSAS,
Respondent.

On Writs of Certiorari to the Alabama Court of Criminal Appeals & Arkansas Supreme Court

BRIEF OF *AMICI CURIAE* J. LAWRENCE ABER, MARC S. ATKINS, CAMILLA P. BENBOW, MARY M. BRABECK, JANE C. CONOLEY, KENNETH A. DODGE, MICHELLE FINE, ADRIANA GALVÁN, MARGO GARDNER, CHARLES F. GEIER, FRANCES E. JENSEN, JACQUELINE MATTIS, PEDRO NOGUERA, BRUCE D. PERRY, AND VINCENT SCHMITHORST IN SUPPORT OF PETITIONERS

SARA B. KRIEGER
CLIFFORD CHANCE US LLP
31 West 52nd Street
New York, NY 10019
(212) 878-8000

STEPHEN M. NICKELSBURG
Counsel of Record
ERIN LOUISE PALMER
CLIFFORD CHANCE US LLP
2001 K Street, NW
Washington, DC 20006
(202) 912-5000
Steve.Nickelsburg@CliffordChance.com

Counsel for Amici Curiae

January 17, 2012

WILSON-EPES PRINTING CO., INC. – (202) 789-0096 – WASHINGTON, D. C. 20002

QUESTIONS PRESENTED

1. Does imposition of a life-without-parole sentence on a fourteen-year-old child convicted of homicide violate the Eighth and Fourteenth Amendments' prohibition against cruel and unusual punishments, when the extreme rarity of such sentences in practice reflects a national consensus regarding the reduced criminal culpability of adolescents?

2. Does imposition of a mandatory sentence of life imprisonment without parole on a fourteen-year-old child convicted of homicide — a sentence imposed pursuant to a statutory scheme that categorically precludes consideration of the offender's young age or any other mitigating circumstances — violate the Eighth and Fourteenth Amendments' prohibition on cruel and unusual punishments?

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page

CASES:

OTHER AUTHORITIES:

INTERESTS OF *AMICI CURIAE*[1]

Amici Curiae are psychologists, social scientists, and neuroscientists who have devoted their careers to the study of adolescent behavior and development. In *Roper v. Simmons*, 543 U.S. 551 (2005), and *Graham v. Florida*, 130 S. Ct. 2011 (2009), the Court relied upon the substantial body of professional literature and scientific evidence confirming that adolescents are significantly different from adults in critical respects, which severely undermine the rationale for imposing our most severe sentences on adolescents and increase the prospects for their rehabilitation. *Amici* respectfully submit this Brief to update and further address this literature and evidence, which continues to support the logic of *Roper* and *Graham* and the conclusion that a sentence of life without the possibility of parole is unconstitutionally cruel when imposed on adolescents, regardless of the crime committed.

The logic of *Roper* and *Graham*, which fundamentally depends upon the unique nature of adolescents, supports the arguments of Petitioners Evan Miller and Kuntrell Jackson. Although adolescents should be held responsible for their actions, compared to adults they are neurologically predisposed to engage in risk-seeking and poor decision-making, highly susceptible to negative peer influence, and less able to understand the nature of the legal proceedings against them and therefore less

---

[1] Pursuant to Rule 37.6, *Amici* state that no counsel for any party authored this Brief in whole or in part, and no person or entity other than *Amici* made a contribution to fund or intended to fund this Brief. Counsel for all parties have consented to the filing of this Brief, and letters of consent have been filed with the Clerk.

able to effectively aid in their own defense. Adolescents are highly malleable, however, and therefore responsive to rehabilitation and capable of profound change. To deprive adolescents, who are neurologically less capable than adults of acting rationally and understanding consequences, who are substantially affected by the influence of peers and their surroundings, and who are virtually certain to mature and evolve with support and proper environmental influence, of "any opportunity to achieve maturity of judgment and self-recognition of human worth and potential" is contrary to the standards of decency that define a just society.

Individual *Amici* are as follows:

- *J. Lawrence Aber* is Distinguished Professor of Applied Psychology and Public Policy at New York University's Steinhardt School of Culture, Education, and Human Development and Director of the Children's Institute at the University of Cape Town, South Africa. He is an internationally recognized expert in child development and social policy and testifies frequently before Congress, state legislatures, and other deliberative bodies. Professor Aber's research examines the influence of poverty and violence at the family and community levels on the social, behavioral, and cognitive development of children and youth. He also has designed and conducted evaluations of a variety of programs for children and youth, including violence prevention, literacy development, and antipoverty initiatives.
- *Marc S. Atkins* is Professor of Psychology in Psychiatry and Director of Psychology Training at the Institute for Juvenile Research at the University of Illinois at Chicago. Professor Atkins

is a leading researcher on the development of school-based mental health services in urban and high-poverty communities. He has published extensively on children's mental health. He is a consultant to the Chicago Public Schools and the Illinois Department of Mental Health.

- *Camilla P. Benbow* is Patricia and Rodes Hart Dean of Education and Human Development at Vanderbilt University's Peabody College. Dr. Benbow is a member of the Board of the American Psychological Association and is Co-Founder and Co-Chair of the committee of AAU College of Education Deans. Her scholarship focuses on developmental psychology, precocity, and educational policy. She has authored or co-authored more than 100 articles and thirty-five book chapters, and she is the editor of *Intellectual Talent: Psychometric and Social Issues* and *Academic Precocity: Aspects of its Development.* Dr. Benbow is Vice-Chair of the National Mathematics Advisory Panel and a member of the National Science Board.

- *Mary M. Brabeck* is Gale and Ira Drukier Dean of New York University's Steinhardt School of Culture, Education, and Human Development; Professor of Applied Psychology; and Fellow of the American Psychological Association and the American Educational Research Association. Dr. Brabeck is a scholar and leader in the fields of applied and developmental psychology. Her research focuses on intellectual and ethical development, values and conceptions of the moral self, and professional ethics. She has published more than 100 journal articles, books, and book chapters. She has an honorary degree from St.

Joseph University and several national awards and honors.

- *Jane C. Conoley* is Professor and Dean at Gevirtz Graduate School of Education at the University of California, Santa Barbara, and the former Dean of Education at Texas A&M University. Her research focuses on psychological and educational measurement. Dr. Conoley is the author or editor of twenty-two books and over seventy articles and book chapters, and serves on ten editorial boards. She has received numerous research, teaching, and service honors, and has been recognized by the American Psychological Association for outstanding service to the profession.
- *Kenneth A. Dodge* is William McDougall Professor of Public Policy, Professor of Psychology and Neuroscience, and Director of the Center for Child and Family Policy at Duke University. He has been recognized by the National Institutes of Health with the Senior Scientist Award and by the American Psychological Association with the Distinguished Scientific Award. His scholarship addresses the development and prevention of chronic violence in children and adolescents. He has published extensively on these topics, including more than 400 scientific articles on clinical and developmental psychology, and is one of the most cited scientists in his field. Professor Dodge created the Fast Track Program, a comprehensive effort that has been found to prevent serious and chronic violence in high-risk youth.
- *Michelle Fine* is Distinguished Professor of Social Psychology, Women's Studies, and Urban

Education at the Graduate Center at the City University of New York. She is the author of numerous award-winning books in the fields of education and psychology and is Co-Editor of New York University Press' Qualitative Studies in Psychology Series. Professor Fine's research on urban youth in schools, communities, and prisons and social justice has been funded by the Spencer Foundation, Surdna Foundation, Ford Foundation, Open Society Foundation, and Carnegie Foundation.

- *Adriana Galván* is Assistant Professor of Psychology, Faculty Member of the Brain Research Institute, and Director of the Galvan Laboratory for Developmental Neuroscience at University of California, Los Angeles. Her research examines the neurobiological changes that underlie characteristic adolescent behavior, including decision-making, reinforcement learning, and risky behavior. She has published widely and is currently examining how stress, peers, and ethnic culture influence adolescent development and behavior. Her work is funded through the National Institutes of Health, National Science Foundation, and the CA Tobacco-Related Disease Prevention Program.

- *Margo Gardner* is Research Scientist at the National Center for Children & Families. Dr. Gardner's research addresses the contextual predictors of psychopathology, risk behavior, and social and academic competence during adolescence and young adulthood. Her scholarship includes research on risk-taking among adolescents, the development of juvenile offending, the influence of exposure to violence,

and the protective role of afterschool and extracurricular activities. Dr. Gardner has published numerous articles, including *Peer Influence on Risk-Taking, Risk Preference, and Risky Decision-Making in Adolescence and Adulthood: An Experimental Study*. Her dissertation research on the etiology of juvenile offending was awarded the Hershel D. Thornburg Award by the Society for Research on Adolescence.

- *Charles F. Geier* is Assistant Professor of Human Development at the College of Health and Human Development of Penn State University. Dr. Geier's research focuses on developmental changes in basic cognitive and affective brain systems in adolescents and young adults. He is the author of numerous articles in the field of neural development.

- *Frances E. Jensen* is Professor of Neurology at Harvard Medical School's Department of Neurology and Director of Translational Neuroscience, Director of Epilepsy Research at Children's Hospital Boston, and Senior Associate Physician in Neurology at Children's Hospital Boston and Brigham and Women's Hospital. Dr. Jensen's research focuses on age-specific mechanisms in the developing brain related to stroke and epilepsy, as well as brain plasticity. In 2007, she received a Pioneer Award from the National Institute of Health to explore the interaction between epileptogenesis and cognitive dysfunction. Dr. Jensen has presented extensively on adolescent brain development. She is on the Governing Board of the American Epilepsy Society and the Governing Council for the Society for Neuroscience.

- *Jacqueline Mattis* is Associate Professor of Applied Psychology and Department Chair at New York University's Steinhardt School of Culture, Education, and Human Development. Her work focuses on religiosity and spirituality in African American culture, with emphasis on how religion and spirituality inform prosocial development. She has received numerous awards for her scholarship, including the 2001 Positive Psychology Young Scholars Award.
- *Pedro Noguera* is Professor of Teaching and Learning at New York University's Steinhardt School of Culture, Education, and Human Development. Dr. Noguera has served as Executive Director of the Metropolitan Center for Urban Education and Co-Director of the Institute for the Study of Globalization and Education in Metropolitan Settings. His research focuses on the influence of social and economic conditions on schools. He also has conducted research into education and social conditions throughout the world. Professor Noguera has published over 100 works on youth violence, urban public schools, and race and ethnic relations in American society. He has served as a member of the U.S. Public Health Service Centers for Disease Control Taskforce on Youth Violence and many advisory boards.
- *Bruce D. Perry* is Adjunct Professor of Psychiatry and Behavioral Sciences at Northwestern University's Feinberg School of Medicine and Senior Fellow of The Child Trauma Academy in Houston. He also serves as Senior Consultant to the Alberta Ministry of Children's Services in Canada. He is a clinician and researcher in children's mental health and the neurosciences,

whose research and practice focuses on the long-term effects of trauma in children, adolescents, and adults. He is the author of two books, thirty book chapters, and over 300 scientific publications and is the recipient of a variety of professional awards. His Neurosequential Model of Therapeutics is used with high-risk children and youth, including those in the juvenile justice system, in over fifty settings in more than a dozen states in Canada, Australia, the United Kingdom, and the United States.

- *Vincent Schmithorst* is Associate Professor at the University of Pittsburgh Medical Center's Department of Radiology. His research includes functional magnetic resonance imaging studies of pediatric subjects, white matter microstructure in the pediatric population, and novel image analysis techniques for use on neuroimaging data. He has published over sixty articles related to neuro and functional magnetic resonance imaging, including *Functional Connectivity in the Brain and Human Intelligence* and *White Matter Development During Adolescence as Shown by Diffusion MRI*. Dr. Schmithorst was awarded the "Editor's Choice Award" from the Organization for Human Brain Mapping.

SUMMARY OF ARGUMENT

The Court acknowledged in *Roper* and reaffirmed in *Graham* that adolescent offenders are inherently "not as morally reprehensible as . . . adult" offenders, relying in part upon scientific study demonstrating that adolescents' neurological maturity and development are significantly different from those of adults.[2] The body of scientific study has only deepened since those decisions and continues to confirm that compared with adults, the unique developmental characteristics of adolescents' brains lead to more impulsive behavior, the failure to comprehend consequences, and an underdeveloped sense of self, all of which may cause poor decisions and reckless actions. Adolescents also are particularly susceptible to negative environmental influences, which in turn may influence brain biology in a way that compounds the characteristics associated with their unique developmental stage. This distinction between the adolescent brain and the adult brain means that adolescent offenders are less culpable than adults and "cannot with reliability be classified among the worst of offenders."[3] This is true regardless of the crime committed.

Based upon this immature capacity and "diminished culpability," the Court has held that the death penalty cannot be imposed on adolescents, "no matter how heinous the crime."[4] For the same reasons, the Court has held that a sentence of life without parole, our "second most severe penalty," is

---

[2] *Graham v. Florida*, 130 S. Ct. 2011, 2026 (2010); *see also Roper v. Simmons*, 543 U.S. 551, 561 (2005).

[3] *Graham*, 130 S. Ct. at 2026.

[4] *Roper*, 543 U.S. at 568.

unconstitutionally disproportionate for adolescents who commit non-homicide crimes — without regard to their heinousness or depravity.[5] The denial of all possibility of parole is particularly cruel in light of adolescents' unique capacity for change and rehabilitation, because a sentence of life without parole "gives no chance for fulfillment outside prison walls, no chance for reconciliation with society, no hope."[6] Although *Amici* believe that adolescents can and should be held accountable for their actions, based on this logic, it is arbitrary and irrational to deny the possibility of parole solely to adolescent offenders whose crimes involved homicide.

This Brief focuses on the scientific and academic study post-*Graham* that confirms and extends our knowledge and understanding of adolescents' neurological, physiological, and psychological development. *First,* research continues to confirm that the process of adolescent brain development leads to greater vulnerabilities to high-sensation seeking behavior and less ability to fully comprehend consequences in comparison to adults. Recent studies have reinforced the conclusion that adolescents have a higher tendency to engage in risky behavior when faced with emotional or stressful situations. Environmental factors such as exposure to violence, peer influences, and availability of illegal substances only compound these deficiencies.

Second, ongoing research confirms that adolescents are highly amenable to rehabilitation and change. The very immaturity and plasticity that

---

[5] *Graham*, 130 S. Ct. at 2027.

[6] *Id.* at 2032.

create an increased propensity for wrongdoing in adolescents also provide an enormous capacity for learning, development, and growth. Most adults understand and believe that the persons they were at age fourteen or fifteen are not the persons they are today. A sentence of life imprisonment without possibility of parole eliminates that opportunity for change and "forswears altogether the rehabilitative ideal."[7]

No penological goal is furthered by denying the possibility of parole to adolescents who receive life sentences. There is no retributive benefit to maximizing the punishment of the less culpable; and adolescents with underdeveloped rationality are unlikely to be deterred by losing the possibility of parole. At the same time, no legitimate interest is served by denying the prospect of rehabilitation to those most likely to respond to it, or by forever incapacitating those least likely to need it.

Third, to the extent one believes that some individuals even as adolescents are simply beyond hope (and *Amici* do not), our legal system is ill-equipped to identify those individuals at the time of trial. "[I]t is difficult 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."[8] Even if courts had that ability, adolescents are far less capable of participating effectively in proceedings designed for adults, including by communicating with authority figures such as the police, judges, and their own

---

[7] *Id.* at 2030.

[8] *Roper*, 543 U.S. at 573.

counsel. Fundamental fairness does not countenance requiring adolescent defendants to prove the impossible, years in advance, in the adult legal system. To the contrary, fairness and decency require an opportunity to demonstrate, at some point in their lives, that crimes committed as a child do not reflect their true, developed characters and should not doom them to die behind bars.

In sum, the imposition of a sentence of life without parole on adolescents is inconsistent with scientific understanding of human growth, does not further legitimate penological purposes, and is fundamentally unfair. The Court so held in *Graham* for the adolescent who commits any non-homicide crime, which may include depraved and despicable acts such as maiming, raping, and torturing. It is equally true for crimes involving homicide. For these reasons, *Amici* respectfully submit that the judgments of the courts below should be reversed.

ARGUMENT

I. SCIENTIFIC RESEARCH POST-*ROPER* AND *GRAHAM* CONTINUES TO CONFIRM THAT ADOLESCENTS ARE BIOLOGICALLY LESS DEVELOPED AND CONSEQUENTLY LESS CULPABLE THAN ADULTS.

The Court has several times observed "[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."[9] To support this observation, the Court in *Roper* and *Graham* relied upon a growing body of research regarding the development of the brain, which shows that

[9] *Id.* at 569.

adolescents differ from adults in critical ways. That body of study has continued to grow since *Graham*, and continues to show that adolescent decision-making processes are significantly different than those of adults. Adolescents are more oriented toward high-sensation and novelty-seeking behavior and are more susceptible to environmental influences such as violent surroundings, peer pressure, and substance abuse. These observations are independent of the nature of the crime, and apply equally to adolescents involved in homicide and adolescents involved in other heinous crimes that do not involve death.

A. Differences in Neurological Development Lead to Greater Vulnerability for Risky and Reward-Seeking Behavior in Adolescents.

In holding that adolescents are inherently less culpable than adults, the Court in *Roper* and *Graham* observed that "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds,"[10] including differences in impulse and behavior control. Ongoing advances in research, including neuroimaging studies, decision-making task studies, and Diffusion Tensor Imaging ("DTI") studies, continue to confirm that adolescents' brains are not fully developed in unique ways that lead to a higher likelihood of risky behavior and make it "misguided to equate the failings of a minor with those of an adult."[11]

---

[10] *Graham*, 130 S. Ct. at 2026.

[11] *Id.*

1. *Post*-Graham *Studies Reinforce that Adolescents' Unique Brain Development Leads to Greater Risk-Taking, Particularly in Stressful Situations.*

Two neurobiological systems underlie risky behavior: the prefrontal regulatory system (which is responsible for rational judgment and impulse control)[12] and the limbic system (which is responsible for emotional and reward-seeking behavior).[13] During adolescence, this "dual-system" is poorly balanced. Activity in the limbic system surges while the prefrontal regulatory system remains relatively immature. This is evident in functional magnetic resonance imaging ("fMRI") brain scans, which demonstrate that adolescents' brains are unlike those of adults or very young children: Adolescents' prefrontal regulatory systems are less effective at regulatory control than adults', and adolescents' limbic systems are more active than adults' or children's.[14] As a result of the slower growth of the impulse-control system relative to the reward-seeking system, adolescents are particularly vulnerable to

---

[12] Leah Somerville et al., *Frontostriatal Maturation Predicts Cognitive Control Failure to Appetitive Cues in Adolescents*, 23 J. COGNITIVE NEUROSCI. 2123, 2123-24 (2011); Laurence Steinberg, *A Dual Systems Model of Adolescent Risk-Taking*, 52 DEVELOPMENTAL PSYCHOBIOLOGY 216, 216-17 (2010).

[13] Steinberg, *supra* note 12, at 216-17; Bernd Figner et al., *Affective and Deliberative Processes in Risky Choice*, 35 J. EXPERIMENTAL PSYCHOL. 709, 710 (2009)); Laurence Steinberg, *A Social Neuroscience Perspective on Adolescent Risk-Taking*, 28 DEVELOPMENTAL REV. 78, 91-92 (2008).

[14] Todd Hare et al., *Biological Substrates of Emotional Reactivity and Regulation in Adolescence During an Emotional Go-Nogo Task*, 63 BIOLOGICAL PSYCHIATRY 927, 932 (2008).

risk-taking and poor decision-making,[15] which may in the wrong circumstances contribute to delinquent behavior and which the Court has held means that "juvenile offenders cannot with reliability be classified among the worst offenders."[16]

Over the past decade, the scientific community has reached a consensus that the prefrontal regulatory systems of adolescents' brains develop more slowly than other neural systems, including systems that encourage risky and reward-seeking behavior.[17] Since *Graham*, studies continue to confirm that the prefrontal cortex is among the last regions of the brain to mature.[18] In fact, the prefrontal cortex is not fully mature until an

---

[15] Somerville et al., *supra* note 12, at 2130-32; Laurence Steinberg, *A Behavioral Scientist Looks at the Science of Adolescent Brain Development*, 72 BRAIN & COGNITION 160, 161-62 (2010); Figner et al., *supra* note 13, at 710-11; Charles Geier & Beatriz Luna, *The Maturation of Incentive Processing and Cognitive Control*, 93 PHARMACOLOGY, BIOCHEMISTRY & BEHAV. 212, 218 (2009).

[16] *Graham*, 130 S. Ct. at 2026.

[17] *See, e.g.*, Steinberg, *supra* note 12; Sunita Bava & Susan Tapert, *Adolescent Brain Development and the Risk for Alcohol and Other Drug Problems*, 20 NEUROPSYCHOL. REV. 398 (2010); Laurence Steinberg et al., *Age Differences in Future Orientation and Delay Discounting*, 80 CHILD DEV. 28 (2009); Laurence Steinberg, *Adolescent Development and Juvenile Justice*, 5 ANN. REV. CLINICAL PSYCHOL. 459 (2009); BJ Casey et al., *The Adolescent Brain*, 28 DEVELOPMENTAL REV. 62 (2008); Adriana Galvan et al., *Risk-Taking and the Adolescent Brain*, 10 DEVELOPMENTAL SCI. F8 (2007); Sarah-Jayne Blakemore & Suparna Choudhury, *Development of the Adolescent Brain*, 47 J. CHILD PSYCHOL. & PSYCHIATRY 296 (2006).

[18] Alison Burke, *Under Construction*, 34 INT'L J.L. & PSYCHIATRY 381, 383 (2011); Steinberg, *supra* note 15, at 161.

individual reaches his or her twenties.[19] Given the role of the prefrontal regulatory system in rational judgment and emotional control, reduced prefrontal activity is strongly linked to poor adolescent decision-making in the "heat of the moment."[20]

At the same time, adolescents are undergoing fundamental neural developments that render them more vulnerable to risk-taking,[21] including rapid development of the limbic system[22] and alteration of the dopaminergic neurotransmission, which is key to reward-seeking behavior.[23] In fact, high levels of dopamine in the region of the brain responsible for rational judgment and regulatory control peak during adolescence, further increasing propensity to engage in risky and novelty-seeking behavior.[24]

One recent study, the "Columbia Card Task" ("CCT") study, both reinforces prior findings on adolescent risk-taking, and confirms that adolescents take greater risks than adults when faced with emotional or stressful situations. The CCT study

---

[19] *See, e.g.*, Jay Giedd, *Structural Magnetic Resonance Imaging of the Adolescent Brain*, 1021 ANNALS N.Y. ACAD. SCI. 77, 83 (2004); Nitin Gogtay et al., *Dynamic Mapping of Human Cortical Development During Childhood Through Early Adulthood*, 101 PROC. NAT'L ACAD. SCI. 8174, 8178 (2004).

[20] Hare et al., *supra* note 14, at 932-33.

[21] Somerville et al., *supra* note 12, at 2129-30; M. Asato et al., *White Matter Development in Adolescence*, 20 CEREBRAL CORTEX 2122, 2128 (2010).

[22] Hare et al., *supra* note 14, at 932.

[23] Monica Luciana, *Adolescent Brain Development*, 72 BRAIN & COGNITION 1, 3 (2010); Dustin Wahlstrom et al., *Developmental Changes in Dopamine Neurotransmission in Adolescence,* 72 BRAIN & COGNITION 146, 150-52 (2010).

[24] Wahlstrom et al., *supra* note 23, at 152.

tested the dual-system theory proposed in previous studies, such as the "Iowa Gambling Task" study, which were brought to the attention of the Court in *Graham*. In the Iowa Gambling Task study — thought to simulate real-life decision-making — participants were asked to choose playing cards from "good decks," which offered smaller one-time rewards but led to net gains over time, or "bad decks," which included potential for very large one-time rewards but generally led to net losses over time. Compared to adults, adolescents ages thirteen to fifteen took longer to choose from the good decks, demonstrating a heightened sensitivity to immediate rewards.[25]

The CCT study confirmed the findings in the Iowa Gambling Task study and provided additional data points by measuring risk-taking among younger adolescents, older adolescents, and adults. The CCT study recorded electrodermal activity during a card game through skin conductance response, a widely-used physiological measure of emotional arousal. Each participant was asked to decide whether to turn over a card in a display, where each card returned either a gain or a loss. Participants could stop at any point and claim a payoff. Because the likelihood of experiencing a loss increased with each card turned over, an individual's decision to turn over more cards reflected a riskier strategy.[26]

---

[25] Eveline Crone & Maurits van der Molen, *Developmental Changes in Real Life Decision Making*, 25 DEVELOPMENTAL NEUROPSYCHOL. 251, 252 (2004); *accord* Elizabeth Cauffman et al., *Age Differences in Affective Decision-Making as Indexed by Performance on the Iowa Gambling Task*, 46 DEVELOPMENTAL PSYCHOL. 193 (2010).

[26] Figner et al., *supra* note 13, at 712-15.

The CCT study included separate "hot" and "cold" versions of the experiment: The "cold" versions eliminated emotional triggers by requiring participants to proceed without feedback, while the "hot" versions triggered emotional decision-making by providing immediate feedback about each decision to turn over a card. The emotional triggers were designed to mimic the emotional pressure of day-to-day life decisions. The CCT study found, and additional studies have verified, that such "hot" experiments reliably trigger activity in the emotional centers of the brain. And in the "hot" experiments, both adolescent groups turned over more cards than adults.[27]

The CCT study confirmed that adolescents exhibit significantly greater risk-taking than adults when faced with emotional situations. This study also tested factors not previously tested, including adolescents' and adults' differing abilities to process probability, gain amounts, and loss amounts. While adults took into account all three factors, adolescents primarily took into account only probability, and loss and gain amounts had virtually no effect on adolescents' decisions. In short, the study substantiates that adolescents, relative to adults, are more heavily influenced by the emotional limbic system and do not consider all relevant factors when making risky decisions under stressful situations.[28]

---

[27] *Id.*; *see e.g.*, A. Aron et al., *Human Midbrain Sensitivity to Cognitive Feedback and Uncertainty During Classification Learning*, 92 J. NEUROPHYSIOLOGY 1144 (2004); D. Shohamy, *Cortico-Striatal Contributions to Feedback-Based Learning*, 127 BRAIN 851 (2004).

[28] Figner et al., *supra* note 13, at 726-28.

2. *Post*-Graham *Studies Confirm that Adolescents' Brains are Less Capable of Impulse Control and Rational Judgment.*

Adolescents also are less capable than adults of controlling their impulses and engaging in rational decision-making because the white matter that transmits signals within the brain is relatively undeveloped. Gray matter in the brain represents information processing centers, while white matter coordinates how well these centers work together.[29] As a result of undeveloped white matter, the portion of the adolescent brain responsible for rational judgment and impulse control does not communicate with and control the emotional and reward-seeking portion of the brain as efficiently or effectively as an adult's.

Recent studies confirm that as adolescents' brains develop and white matter increases, the prefrontal regulatory system becomes better able to regulate the limbic system, which results in improved decision-making. As adolescents grow older, white matter increases and gray matter decreases. In particular, white matter increases through a process called "myelination," which speeds and improves information processing.[30] Myelination continues to occur through young adulthood[31] and is central to

---

[29] Vincent Schmithorst & Weihong Yuan, *White Matter Development During Adolescence as Shown by Diffusion MRI*, 72 BRAIN & COGNITION 16, 16-19 (2010).

[30] Geier & Luna, *supra* note 15, at 216.

[31] Damien Fair et al., *Functional Brain Networks Develop from a "Local to Distributed" Organization*, 5 PLOS COMPUTATIONAL BIOLOGY 1, 8 (2009).

effective cognitive control.[32] At the same time, gray matter decreases both naturally and through "synaptic pruning," whereby under-utilized synapses die off.[33] These processes have been found to continue into adulthood, especially in the frontal regions of the brain, supporting improvements in regulatory control.[34]

Since these phenomena were brought to the Court's attention in *Graham*, Diffusion Tensor Imaging ("DTI") has become a widely used method to measure white matter growth.[35] DTI is a sophisticated form of a well-established magnetic resonance imaging method called Diffusion-Weighted Imaging ("DWI")[36] and is one method of measuring connectivity between brain regions.[37] These DTI studies have shown a positive correlation between age and white matter volume, which increases into and through young adulthood, particularly in the regions responsible for impulse control and rational judgment.[38]

Other advances such as magnetic resonance imaging ("MRI") studies that test resting-state

---

[32] Hare et al., *supra* note 14, at 932.

[33] Geier & Luna, *supra* note 15, at 216.

[34] M. Asato et al., *supra* note 21, at 2125-27.

[35] *Id.*; Schmithorst & Yuan, *supra* note 29, at 19; Thomas Paus, *Growth of White Matter in the Adolescent Brain*, 72 BRAIN & COGNITION 26, 27 (2010).

[36] J. Guadagno et al., *Progress in Imaging Stroke*, 65 BRITISH MED. BULL. 145, 147 (2003).

[37] BJ Casey et al., *Changes in Cerebral Functional Organization During Cognitive Development*, 15 NEUROBIOLOGY 239, 239 (2005).

[38] Schmithorst & Yuan, *supra* note 29, at 21; Asato et al., *supra* note 21, at 2125-27; Geier & Luna, *supra* note 15, at 216.

functional connectivity provide further understanding of relationships between brain regions, how they work together, and how they change with development.[39] One resting-state functional connectivity MRI study of 107 adolescents ages fourteen to nineteen revealed that young adolescents demonstrated patterns of connectivity between brain regions more similar to that of impulsive juvenile offenders, while that of older adolescents mirrored less-impulsive juvenile offenders.[40] The study found that "younger brains tend to have a 'more impulsive' pattern of . . . functional connectivity,"[41] supporting the conclusion that adolescents are neurologically less capable of impulse control than adults.

B. Adolescents are Uniquely Susceptible to Environmental Influences, Which Reinforce Neurological Differences.

The Court observed in *Roper* and *Graham* that "juveniles are more vulnerable or susceptible to negative influences and outside pressures, including peer pressure," than adults.[42] These negative influences impact adolescents' brain development. As a result of "plasticity," whereby the synapses grow and become stronger when used and weaken and die off when unused, adolescents' exposure to negative influences reinforces the effect of the adolescent brain's immature prefrontal regulatory system and

---

[39] Fair et al., *supra* note 31, at 8.

[40] Benjamin Shannon et al., *Premotor Functional Connectivity Predicts Impulsivity in Juvenile Offenders*, 108 PROC. NAT'L ACAD. SCI. 11241, 11241-44 (2011).

[41] *Id.*

[42] *Graham*, 130 S. Ct. at 2026.

mature limbic system.[43] At the same time, however, the adolescent brain's plasticity allows for increased responsiveness to changing circumstances, supporting the conclusion that adolescents will respond to appropriate interventions and efforts at rehabilitation. Research continues to confirm this point.[44]

Of course, many who are born into difficult circumstances, experience challenging environments, or face peer pressure overcome those situations and reach adulthood without committing crimes. The question, however, is not whether those who fail to immediately overcome their circumstances should be held accountable for their actions; it is whether they must forever forfeit the opportunity, after appropriate punishment and intervention, to show that they have transcended their adolescent personality and circumstances and matured, developed, and changed.

1. *Environmental Factors, Often Beyond Their Control, Greatly Influence Adolescents' Development and Behavior.*

Scientists have amassed significant evidence that environmental experiences play a crucial role in shaping adolescents' brain development and affecting their behavior. Studies involving the observation of adolescents from childhood to adulthood have shown, for example, a correlation between delinquent

---

[43] Robert Anda et al., *The Enduring Effects of Childhood Abuse and Related Experiences*, 256 EUROPEAN ARCHIVES PSYCHIATRIC & CLINICAL NEUROSCI. 174, 181 (2006).

[44] *See* Mark Lipsey et al., *Effective Intervention for Serious Juvenile Offenders*, JUV. JUST. BULL. 4-6 (2000); *see also* Sue Ramsden et al., *Verbal and Non-Verbal Intelligence Changes in the Teenage Brain*, 479 NATURE 113, 113-15 (2011).

behavior and trauma.[45] One study showed that 92.5% of 898 adolescent detainees previously experienced traumatic events such as witnessing assault or murder, being threatened with a weapon, or being forced into sexual acts.[46] The trauma of witnessing violence was far more common among this sample of adolescents in juvenile detention (74.9% of males and 63.5% of females) than in the general community (4.9%-40.1%).[47] In another study of trauma among male delinquents ages twelve to seventeen, 76% reported witnessing violence, which was defined as having observed someone being shot, stabbed, sexually assaulted, mugged, robbed, or threatened with a weapon.[48]

These studies also show a correlation between adolescent delinquent behavior and a violent home life. One meta-analytic study analyzing 118 studies on the effects of aggression in the home found that 63% of children who witnessed violence between their parents faced increased difficulties in their psychosocial development, including psychological, social, and academic problems, in comparison to a group who had not been exposed to similar violence.[49] Another meta-analytic study produced consistent results, demonstrating that exposure to violence between parents is associated with an increased risk

---

[45] *See* Tina Maschi, *Unraveling the Link Between Trauma and Male Delinquency*, 51 SOC. WORK 59, 62-63 (2006).

[46] Karen Abram et al., *Posttraumatic Stress Disorder and Trauma in Youth in Juvenile Detention*, 61 ARCHIVES GEN. PSYCHIATRY 403, 405, 407 (2004).

[47] *Id.*

[48] Maschi, *supra* note 45, at 62-63.

[49] Katherine Kitzmann et al., *Child Witnesses to Domestic Violence*, 71 J. CONSULTING & CLINICAL PSYCHOL. 339, 339, 345 (2003).

of emotional and behavioral problems during adolescence.[50]

The more often adolescents are exposed to threatening environments the more quickly their brains learn to respond to those threats.[51] Frequent exposure to threatening or violent environments strains adolescents' immature prefrontal lobes, which further impairs adolescents' ability to control their impulses.[52] Adolescents who have witnessed aggression and violence or who have been subjected to physical maltreatment in early years are likely to develop a pattern of behavior that includes hypervigilance to threat cues, erroneous attribution of hostile intent to others, choosing aggressive solutions to interpersonal problems when nonviolent solutions are available, and finding the results of aggressive behavior self-satisfying and positive. This pattern, in turn, may lead to later violent behavior.[53]

Research also shows, however, that interventions — which correct for negative environmental factors by teaching parents to control violent behaviors and teaching children new patterns of processing social information — can reduce delinquent behavior, even for the most difficult

---

[50] Sarah Evans et al., *Exposure to Domestic Violence*, 13 AGGRESSION & VIOLENT BEHAV. 131, 133, 136-37 (2008).

[51] R. Post, *Transduction of Psychosocial Stress into the Neurobiology of Recurrent Affective Disorder*, 149 AM. J. PSYCHIATRY 999, 1004-05 (1992).

[52] Jane Rutherford, *Community Accountability for the Effect of Child Abuse on Juvenile Delinquency in the Brave New World of Behavioral Genetics*, 56 DEPAUL L. REV. 949, 953 (2007).

[53] Gregory Pettit et al., *Domain Specificity in Relationship History, Social-Information Processing, and Violent Behavior in Early Adulthood*, 89 J. PERSONALITY & SOC. PSYCHOL. 190, 191-92 (2010).

adolescents.[54] For example, one study found that the "Nurse Family Partnership," in which a nurse provides child-care training and social skills development for at-risk mothers during the first two years of their children's lives, reduced the risk of the children's arrest by age fifteen.[55] A subsequent study showed that Conduct Disorder, a high-risk psychiatric condition in which a child repeatedly violates basic social rules and which was once believed to be impervious to treatment, is treatable through intervention.[56] And a recent trial involving 891 children reported that an intervention effort designed to help the parents of highest-risk five-year-olds stop harsh physical discipline, as well as help those children learn skills to prevent the development of aggressive behavior, reduced by 47% the likelihood that the children would commit violent crimes by age eighteen.[57] The success of interventions reflects that

---

[54] Conduct Problems Prevention Research Group, *Fast Track Intervention Effects on Youth Arrests and Delinquency*, 6 J. EXPERIMENTAL CRIMINOLOGY 131 (2010); Conduct Problems Prevention Research Group, *Fast Track Randomized Controlled Trial to Prevent Externalizing Psychiatric Disorders*, 46 J. AM. ACAD. CHILD & ADOLESCENT PSYCHIATRY 1250 (2007); U.S. PUB. HEALTH SERV., YOUTH VIOLENCE (2001); John Paul Wright & Francis Cullen, *Parental Efficacy and Delinquent Behavior*, 39 CRIMINOLOGY 677 (2001).

[55] Peter Greenwood & Susan Turner, *Juvenile Crime and Juvenile Justice*, *in* CRIME AND PUBLIC POLICY 120 (James Wilson & Joan Petersilia eds., 2011); David Olds et al., *Long-Term Effects of Nurse Home Visitation on Children's Criminal and Antisocial Behavior*, 280 J. AM. MED. ASSOC. 1238, 1241 (1998).

[56] Paul Frick, *Effective Interventions for Children and Adolescents With Conduct Disorder*, 46 CANADIAN J. PSYCHIATRY 597, 605 (2001).

[57] Conduct Problems Prevention Research Group, *Fast Track Intervention Effects*, *supra* note 54, at 150.

the same brain plasticity that renders adolescents susceptible to environmental experiences makes them capable of rehabilitation and reform.[58]

2. *Recent Scientific Research Confirms that Adolescents are Unusually Susceptible to Negative Peer Influence.*

As the Court recognized in *Roper* and reaffirmed in *Graham*, adolescents "are more vulnerable or susceptible to negative influences and outside pressures, including peer pressure."[59] In fact, adolescents who commit crimes typically act in peer groups.[60] This observation is consistent with general experience and common sense, and has been confirmed by a substantial body of academic research.[61] Numerous studies post-*Graham* indicate that exposure to deviant peers leads to increased deviant behavior[62] and is a consistent predictor of

---

[58] Bruce Perry, Maltreatment and the Developing Child (Sept. 23, 2004), *in* THE MARGARET MCCAIN LECTURE SERIES, 2005.

[59] *Roper*, 543 U.S. at 569.

[60] Dustin Albert & Laurence Steinberg, *Peer Influences on Adolescent Risk Behavior*, *in* INHIBITORY CONTROL AND DRUG ABUSE PREVENTION 212 (Michael Bardo et al. eds., 2011); Margo Gardner & Laurence Steinberg, *Peer Influence on Risk-Taking, Risk Preference, and Risky Decision Making in Adolescence and Adulthood*, 4 DEVELOPMENTAL PSYCHOL. 625, 626 (2005).

[61] *See e.g.*, UNDERSTANDING PEER INFLUENCE IN CHILDREN AND ADOLESCENTS (Mitchell Prinstein & Kenneth Dodge eds., 2008); Philip Cook et al., *The Negative Impacts of Starting Middle School in the Sixth Grade*, 27 J. POL'Y ANALYSIS & MGMT. 104 (2008); DEVIANT PEER INFLUENCES IN PROGRAMS FOR YOUTH (Kenneth Dodge et al. eds., 2006); Gardner & Steinberg, *supra* note 60.

[62] *See, e.g.*, Jason Chein et al., *Peers Increase Adolescent Risk Taking by Enhancing Activity in the Brain's Reward Circuitry*, 14 DEVELOPMENTAL SCI. F1 (2011); *see generally* DEVIANT PEER INFLUENCES, *supra* note 61.

adolescent delinquency.[63] Peer-influenced delinquent behavior as a result of the influence of older peers is particularly acute.[64]

Recent MRI tests confirm a long line of studies demonstrating both the neurological foundation for adolescents' reduced impulse control when faced with peer pressure and the link between susceptibility to peer pressure and delinquent behavior.[65] The mere presence of peers may push adolescents toward risky behavior.[66] In one study, researchers measured the brain activity of adolescents and adults as they made decisions in a simulated driving game.[67] Participants were required to reach the end of a track as quickly as possible and were forced to decide whether to run a yellow light at an intersection. The participants played the game either alone or with two peers. Consistent with past findings,[68] this study found that only adolescents took a greater number of risks in the

---

[63] Albert & Steinberg, *supra* note 60, at 212; Mary Gifford-Smith et al., *Peer Influence in Children and Adolescents*, 33 J. ABNORMAL CHILD PSYCHOL. 255, 255-58 (2005).

[64] David Harding, *Violence, Older Peers, and the Socialization of Adolescent Boys in Disadvantaged Neighborhoods*, 74 AM. SOC. REV. 445 (2009); Cook et al., *supra* note 61, at 118-19; Scott Leatherdale, *The Influence of Friends, Family, and Older Peers on Smoking Among Elementary School Students*, 42 PREVENTIVE MED. 218, 221 (2006).

[65] Chein et al., *supra* note 62, at F7-F8; Steinberg, *supra* note 15, at 162; Marie-Helene Grosbras et al., *Neural Mechanisms of Resistance to Peer Influence in Early Adolescence*, 27 J. NEUROSCI. 8040, 8040 (2007); Suparna Choudhury et al., *Social Cognitive Development During Adolescence*, SOC. COGNITIVE & AFFECTIVE NEUROSCI. 165, 171 (2006).

[66] Gardner & Steinberg, *supra* note 60; *see also* Albert & Steinberg, *supra* note 60, at 212.

[67] Chein et al., *supra* note 62, at F2-F3.

[68] Gardner & Steinberg, *supra* note 60.

presence of peers. In fact, adolescents took twice as many risks when they knew peers were watching. Furthermore, the regions of the brain associated with emotion and reward-seeking were activated to a greater degree when adolescents knew they were being observed by peers.[69]

In addition, adolescents' reduced ability to control impulses when faced with peer pressure may lead to alcohol use and abuse, which increases the likelihood of delinquent behavior.[70] In turn, alcohol abuse enhances the uneven development of adolescents' brains by overpowering normal chemistry and blocking growth in the underdeveloped logic centers.[71] As a result, adolescent alcohol abuse is both a by-product of a still-maturing prefrontal cortex and a contributing factor to poor decision-making. Yet, studies and statistics show that while both substance use problems and delinquency start and fuel each other during mid-adolescence, they often cease by early adulthood.[72]

II. NONE OF THE GOALS OF PENAL SANCTIONS JUSTIFIES LIFE WITHOUT PAROLE FOR JUVENILE OFFENDERS, REGARDLESS OF THE CRIME COMMITTED.

The Court in *Graham* concluded that none of the goals of penal sanctions is furthered by denying the possibility of parole to adolescent offenders for

---

[69] Chein et al., *supra* note 62, at F7.

[70] Edward Mulvey et al., *Substance Use and Delinquent Behavior Among Serious Adolescent Offenders*, JUV. JUST. BULL. 3 (2010).

[71] Bava & Tapert, *supra* note 17, at 403-05; Mulvey et al., *supra* note 70, at 4.

[72] Mulvey et al., *supra* note 70, at 4.

non-homicide offenses, because adolescents are less culpable and more susceptible to rehabilitation than adults. "Life without parole sentences share some characteristics with death sentences that are shared by no other sentences," including "alter[ing] the offender's life by a forfeiture that is irrevocable," and "depriv[ing] the convict of the most basic liberties without giving hope of restoration."[73] In short, a life without parole sentence "means denial of hope."[74] This logic applies to all adolescent offenders, not just to those convicted of non-homicides.

No scientific study suggests that adolescents involved in homicide crimes are situated differently from other adolescents with respect to emotional and intellectual maturity or brain development. While crimes involving homicide are among the most serious under the law, the factors that reduce culpability in adolescence exist regardless of the crime. There is no retributive benefit to maximizing the punishment of the less culpable; and adolescents' underdeveloped rational decision-making is unlikely to be deterred by the potential impact of losing the possibility of parole. At the same time, because adolescents have great potential for rehabilitation, they are least likely to require lifetime incapacitation.

Sentencing adolescents to life without parole is especially perverse from a rehabilitative standpoint, because compared to adults, adolescents are particularly amenable to change as they mature and develop. Studies demonstrate that most adolescents will "age out" of their risk-taking behavior, fully develop their ability to control impulses, and respond

---

[73] *Graham*, 130 S. Ct. at 2027.

[74] *Id.*

to meaningful incentives and opportunities to succeed.[75] Studies and statistics confirm that crime rates typically rise in early adolescence, peak during mid-to-late adolescence, and then decline.[76] Research indicates that most violent adolescent offenders' "criminal careers" span a period of less than one year.[77] Thus, a large majority of young adolescents will limit their deviant and anti-social behaviors to the adolescent years.[78]

Studies also demonstrate that adolescents can recover and reform delinquent behavior.[79] Rehabilitative programs have proven highly effective for even the most serious adolescent offenders. For example, multiple trials have shown that Multi-Systemic Therapy ("MST"), an intensive family- and community-based treatment program designed specifically to address serious antisocial behaviors of at-risk youth by making positive changes in social systems such as the home, school, community, and peer relations, results in substantially reduced

---

[75] Terrie Moffitt, *Adolescence-Limited and Life-Course-Persistent Antisocial Behavior*, 100 PSYCHOL. REV. 674, 692-94 (1993); *See* Gardner & Steinberg, *supra* note 60, at 632.

[76] *See* U.S. DEP'T OF JUSTICE, OJJDP STATISTICAL BRIEFING BOOK, AGE-SPECIFIC ARREST RATE TRENDS (2011); *see also* Burke, *supra* note 18, at 384; Conduct Problems Prevention Research Group, *Fast Track Intervention Effects*, *supra* note 54, at 132; Moffitt, *supra* note 75, at 675.

[77] Richard A. Mendel, LESS HYPE MORE HELP: REDUCING JUVENILE CRIME, WHAT WORKS – AND WHAT DOESN'T 15 (Am. Youth Policy Forum et al. eds., 2000).

[78] Burke, *supra* note 18, at 384.

[79] *Id.*; Sonja Schoenwald et al., *Inside Multisystemic Therapy*, 8 J. EMOTIONAL & BEHAV. DISORDERS 113, 113-14 (2000).

recidivism rates.[80] One meta analysis of fifty-eight experimental and quasi-experimental studies has shown that Cognitive Behavioral Therapy ("CBT"), a form of psychotherapy that uses a variety of techniques to learn goals and improve skills so that an individual can achieve those goals, is most successful for high-risk individuals.[81] A comprehensive and well-regarded study providing an overview of meta-analytic studies found that rehabilitation programs were effective, supporting the general conclusion that rehabilitation treatment is capable of reducing the re-offense rates of convicted offenders.[82]

Simply put, adolescent offenders are highly likely to respond to rehabilitative efforts over the course of their lives as they grow, mature, learn, and change. As the Court observed in *Graham* for non-homicide offenders, the Eighth Amendment "forbid[s] States from making the judgment at the outset that those offenders never will be fit to reenter society" by forever denying the possibility of parole.[83]

---

[80] Mark Lipsey & Francis Cullen, *The Effectiveness of Correctional Rehabilitation*, 3 ANN. REV. L. & SOC. SCI. 297, 308 (2007); Schoenwald et al., *supra* note 79, at 113-14.

[81] Nana Landenberger & Mark Lipsey, *The Positive Effects of Cognitive-Behavioral Programs for Offenders*, 1 J. EXPERIMENTAL CRIMINOLOGY 451, 471 (2005); *see also* Lipsey & Cullen, *supra* note 80.

[82] Lipsey & Cullen, *supra* note 80, at 314.

[83] *Graham*, 130 S. Ct. at 2030.

III. THE SAME DEFICIENCIES THAT AFFECT ADOLESCENT DECISION-MAKING AND BEHAVIOR MAKE THEM LESS ABLE TO AID IN THEIR OWN DEFENSE.

In *Roper* and *Graham*, the Court considered and rejected taking a case-by-case approach to maturity and culpability during sentencing for adolescents, because "[i]t is difficult 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,"[84] and because a case-by-case approach "does not take account of special difficulties encountered by counsel in juvenile representation."[85] This same difficulty counsels against taking a case-by-case approach here.

The Court in *Graham* acknowledged what scientific and clinical studies have confirmed: "the features that distinguish juveniles from adults also put them at a significant disadvantage in criminal proceedings."[86] Fairness counsels strongly against allowing a lifetime forfeiture against those who, due to their youth and inexperience, are less able to participate effectively in the proceedings against them, less able to consult with counsel, and less able to assist in preparing their defense.

First, adolescents are far less capable than adults of understanding the nature of the legal proceedings against them — including the charges pending, the costs and benefits of available pleas, the import of potential penalties, and their

---

[84] *Roper*, 543 U.S. at 573.

[85] *Graham*, 130 S. Ct. at 2032.

[86] *Id.*

constitutionally guaranteed rights.[87] According to one study, only 45% of adolescents compared with 74% of adults demonstrated an understanding of the *Miranda* warnings.[88] In addition, adolescents may often mistakenly believe that they will be punished for exercising their legal rights. In one study, only one-third of 199 adolescents, compared to two-thirds of 260 adults, recognized that they would not be punished by a judge for asserting their right to remain silent.[89] These phenomena have been documented for decades.

Recent studies continue to confirm these conclusions. In one 2007 study, 78% of defendants ages eleven to thirteen demonstrated an "impaired" understanding of their *Miranda* rights, compared to 63% of defendants ages fourteen to fifteen and 35% of defendants ages sixteen to seventeen.[90] Not surprisingly, those who are least able to understand their rights are most likely to waive them. A 2005 study reported that 86% of adolescents ages eleven to seventeen detained in a juvenile facility had waived their right to remain silent.[91]

---

[87] *See generally* YOUTH ON TRIAL (Thomas Grisso & Robert Schwartz eds., 2000).

[88] Thomas Grisso, *The Competence of Adolescents as Trial Defendants*, 3 PSYCHOL. PUB. POL'Y & L. 3, 12 (1997).

[89] *See* Thomas Grisso, JUVENILES' WAIVER OF RIGHTS 124 (Plenum Publ'g Corp. 1981).

[90] Jodi Viljoen et al., *Adjudicative Competence and Comprehension of* Miranda *Rights in Adolescent Defendants*, 25 BEHAV. SCI. & L. 1, 9 (2007).

[91] Jodi Viljoen et al., *Legal Decisions of Preadolescent and Adolescent Defendants*, 29 L. & HUM. BEHAV. 253, 255, 261 (2005).

Second, adolescents are at greater risk of misunderstanding the role of their counsel. Effective trial participation requires "a personally relevant understanding of the lawyer's advocacy role and the confidential nature of the attorney-client relationship, as well as comprehension of one's own directive role in the process."[92] Because adolescent defendants often lack these capacities, they may question an attorney's allegiance and withhold relevant information out of fear that it will be used against them.[93] One study of fifty adolescents ages twelve to eighteen showed that while 92% reported that they believed attorney-client confidentiality prevented their attorney from disclosing their conversations, 26% also believed that a lawyer could disclose any information to a judge, and 30% also believed that a lawyer could tell their parents what they had said.[94] Another found that 28% of nearly 200 adolescent offenders, as compared to only 6% of 260 adult offenders, believed that confidentiality did not apply if the lawyer was aware of the client's guilt.[95] This is especially true for adolescents represented by public defenders.[96]

---

[92] Melinda Schmidt et al., *Effectiveness of Participation as a Defendant*, 21 BEHAV. SCI. & L. 175, 177 (2003).

[93] *Id.*

[94] Michele Peterson-Badali et al., *Young People's Experience of the Canadian Youth Justice Systems*, 17 BEHAV. SCI. & L. 455, 461 (1999).

[95] Thomas Grisso, *Juveniles' Capacities to Waive* Miranda *Rights*, 68 CAL. L. REV. 1134, 1158 (1980).

[96] Donna Bishop & Hillary Farber, *Joining the Legal Significance of Adolescent Developmental Capabilities with the Legal Rights Provided by* In re Gault, 60 RUTGERS L. REV. 125, 164-65 (2007).

Third, adolescents are "less likely than adults to work effectively with their lawyers to aid in their defense."[97] The Court has long recognized that adolescents have special needs in the legal process and require the "guiding hand of counsel at every step in the proceedings against [them]."[98] Adolescents' immaturity affects their ability to communicate meaningfully with counsel, to provide counsel with information relevant to their defense, and to preserve the attorney-client relationship.[99] Adolescents lack adult levels of concentration and memory, which impedes their ability to provide information regarding events relevant to the crime.[100] Moreover, their lack of life experience can prevent them from recognizing exculpatory facts. For instance, one study using structured interviews to examine the relationship between developmental immaturity and the ability to participate in trial demonstrated that adolescents ages eleven to thirteen were significantly less able to recognize information relevant to their defense than adolescents ages fourteen to fifteen, who in turn demonstrated significantly poorer reasoning and recognition of relevant information than adolescents aged sixteen and older.[101]

---

[97] *Graham*, 130 S. Ct. at 2032.

[98] *In re Gault*, 387 U.S. 1, 36 (1967).

[99] Steinberg, *Adolescent Development and Juvenile Justice*, supra note 17, at 475.

[100] *Id.*; Elizabeth Scott & Thomas Grisso, *Developmental Incompetence, Due Process, and Juvenile Justice Policy*, PUB. L. & LEGAL THEORY WORKING PAPER SERIES 29 (2004).

[101] *See* Thomas Grisso et al., *Juveniles' Competence to Stand Trial*, 27 L. & HUM. BEHAV. 333, 343 (2003); *see also* Steinberg, *Adolescent Development and Juvenile Justice*, *supra* note 17, at 476.

Fourth, the same cognitive deficiencies that impair adolescents in the first place also impair their ability to perform in legal proceedings because they attach more value to short-term results than to long-term consequences than adults.[102] For example, adolescents may be more likely to seek immediate gains such as curtailment of difficult questioning.[103] In an interview of 183 adolescents who were considering waiving their *Miranda* rights, the most frequent concern was "Will I spend the night in jail (detention), or will the police release me to return home?"[104] Another study of 927 adolescents ages eleven to seventeen and 466 adults ages eighteen to twenty-four found that during hypothetical situations involving police interrogation, consultation with a defense attorney, and evaluation of a plea agreement, adolescents performed worse than adults in selecting optimal choices and evaluating future risks, while they were substantially more likely than adults to make choices in conformity with the perceived desires of authority figures.[105] Approximately one-fifth of the adolescents were as impaired in capacities relevant to adjudicative competence as are seriously mentally ill adult subjects who would be incompetent to stand trial.[106]

---

[102] Schmidt et al., *supra* note 92, at 191.

[103] *Id.*

[104] *See* Grisso, *supra* note 89, at 151.

[105] *See* Grisso et al., *Juveniles' Competence to Stand Trial*, *supra* note 101, at 352; *see also* Steinberg, *Adolescent Development and Juvenile Justice*, *supra* note 17, at 476.

[106] *Id.*

CONCLUSION

Scientific research continues to confirm that there is a neurological basis for adolescents' poor decision-making and risky behavior, which over time will reduce as they develop and learn from their environment. Adolescence is a period of tremendous change, and a sentence of life without parole for adolescents convicted of homicide would work the same denial of "opportunity to achieve maturity of judgment and self-recognition of human worth and potential" that the Court found cruel and unusual in *Graham.*[107] These factors are a function of the nature of adolescents generally, and apply without regard to whether an adolescent's crime involves homicide. For these reasons, *Amici* respectfully submit that the judgments of the courts below should be reversed.

[107] *Graham*, 130 S. Ct. at 2032.

Respectfully Submitted,

January 17, 2012

STEPHEN M. NICKELSBURG
Counsel of Record
ERIN LOUISE PALMER
CLIFFORD CHANCE US LLP
2001 K Street, NW
Washington, DC 20006
(202) 912-5000
Steve.Nickelsburg@
CliffordChance.com

SARA B. KRIEGER
CLIFFORD CHANCE US LLP
31 West 52nd Street
New York, NY 10019
(212) 878-8000

Counsel for Amici Curiae