

At least since the early 1900s, the justice system in the United States has recognized that juvenile offenders are not the same as adults, and has tried to incorporate those differences into law and policy. But only in recent decades have behavioral scientists and neuroscientists, along with policymakers, looked rigorously at developmental differences, seeking answers to two overarching questions: Are young offenders, *purely by virtue of their immaturity*, different from older individuals who commit crimes? And if they are, how should justice policy take this into account?

A growing body of research on adolescent development now confirms that teenagers are indeed inherently different from adults, not only in their behaviors, but also (and of course relatedly) in the ways their brains function. These findings have influenced a series of Supreme Court decisions relating to the treatment of adolescents, and have led legislators and other policymakers across the country to adopt a range of developmentally informed justice policies. Now research is beginning to identify differences in the brains of young adults, ages 18 to 21, suggesting that they too may be immature in ways that are relevant to justice policy.

## HOW ADOLESCENTS ARE DIFFERENT

Any parent can tell you that adolescents are different from adults. In recent decades, studies of adolescents' behavior under varying circumstances, along with studies of brain structure, function, and neurochemistry, have shed light on some of the processes underlying those differences.

**What behavioral science has shown.** Adolescents are more likely than children or adults to engage in

risky behavior—a category that includes, but is by no means limited to, involvement in crime. Behavioral studies looking at the components of this behavior point out that teens are typically more impulsive than adults and more inclined to seek out novel and exciting experiences, especially in the presence of peers. Adolescents are less likely than adults to consider the future consequences of their acts, or to weigh the potential costs as heavily as the anticipated rewards. Importantly, risky behaviors tend to peak in late adolescence and early adulthood, then

decline through the twenties. Long-term studies have shown that delinquency in adolescence is usually not an indication of an indelible personality trait: most adolescents, even those who commit serious crimes, will age out of offending and will not become career criminals.

**Neuroscience looks at the underpinnings.**

Over the past decade and more, researchers—including members of the MacArthur Foundation Research Network on Law and Neuroscience—have looked closely at the neuroscience underlying adolescent behavior. What they have found is that different regions of the adolescent brain, and the functional connections among them, develop along distinct timelines, resulting in asymmetry among different brain systems. The emotional centers develop relatively early, making adolescents highly responsive to emotional and social stimuli. By contrast, brain regions that regulate self-control, such as the prefrontal cortex, take a while to catch up and continue to develop even beyond adolescence.

The differential pace of development in these systems can lead to an imbalance in communication among them, allowing those regions that support rational behavior to be overpowered by brain centers involved in emotion. This finding explains the pattern behavioral scientists had previously described: adolescents, especially in emotionally charged contexts or in the presence of peers, are more apt than adults to be impulsive, to disregard future consequences, and to take risks.

Ongoing development of the adolescent brain has another important component: plasticity, or the capacity of the brain to change in response to the environment. Because the brain is undergoing such rapid, fundamental changes at this stage of life, adolescents have a heightened capacity to learn and to alter how they behave as they age out of risky behavior. Given an environment and supports appropriate to their developmental stage, most young offenders have the potential to become law-abiding adults.

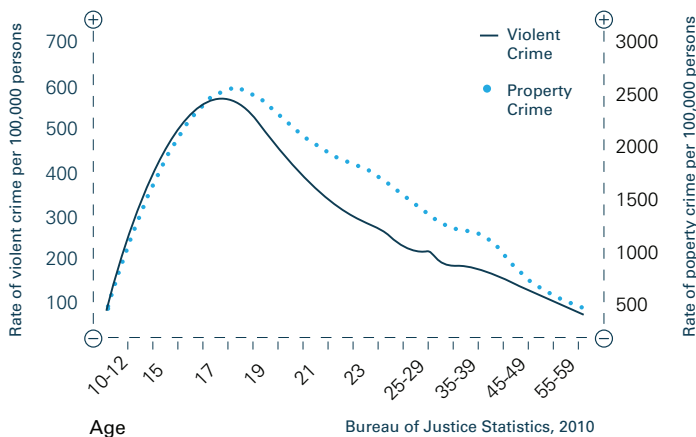
**NEW KNOWLEDGE INFORMS JUSTICE POLICY**

The emerging knowledge about adolescent development has had a growing influence on justice policy. In 2005, in the case of *Roper v. Simmons*, the Supreme Court banned the death sentence for youth who were under 18 at the time of the crime. The case marked the first time the Court had grounded its opinion in developmental science. Citing behavioral research supported by the MacArthur Foundation and others, Justice Kennedy noted that adolescents, by virtue of their developmental stage, are less culpable—less blameworthy—than adults, and that even a heinous crime committed by an adolescent is not evidence of an “irretrievably depraved character.” Thus, the Court declared, the death penalty is a “disproportionate punishment for juveniles.”

Although adolescent brain development was mentioned in oral arguments, it did not appear in the Court’s opinions in *Roper*. At that time, the neuroscientific research on adolescents was simply too limited. That changed significantly over the next decade, as new work, by the Research Network on Law and Neuroscience and others, added validity to arguments based in developmental psychology and showed that adolescents’ behaviors were at least partly a result of the immaturity of their brains.

The growing influence of this emerging research on the Supreme Court can be seen in a series of opinions that strictly limited the use of life without parole for juveniles. In 2010, in *Graham v. Florida*, the Court described explicitly the development of brain regions involved in “behavior control.” Two years later, in *Miller v. Alabama*, the Court expanded

Offending drops steeply after age 18



its use of brain science, citing *amicus* briefs by a number of scientific organizations and pointing out that new findings strengthened the earlier opinions. These opinions found the use of life without parole almost always to be inappropriate for adolescents, even for homicide, because of their inherently limited culpability and their capacity for change. In *Montgomery v. Louisiana* in 2016, the Court underscored the importance of the principle at the heart of the earlier opinions—that “children are different”—announcing that *Miller* created a substantive rule of constitutional law. Adolescents, the Court said, deserve to have a meaningful opportunity for reform and a chance to demonstrate that they have matured and changed.

Beyond the Supreme Court, policymakers across the country began looking at adolescents through different lenses. State courts and legislatures have undertaken a wide range of legal reforms, including restrictions on adult prosecution of juveniles, protections in the courtroom, special sentencing and parole policies, and developmentally based correctional programs in secure facilities and in the community. Such policies recognize that justice systems can get better results—for the young offenders and for society—by treating adolescents less harshly and by providing them with opportunities to become productive citizens. It seems likely that continuing advances in neuroscience will strengthen these reforms and lead to wider acceptance of them and others.

## YOUNG ADULTHOOD: THE NEXT FRONTIER?

When developmental scientists—and to a large extent policymakers—speak of adolescents they usually mean teenagers up to the age of 18. Today, though, neuroscientists, as well as behavioral scientists, are beginning to look more closely at young adulthood—the period between ages 18 and 21—and to differentiate it from later stages of adulthood.

**Why it matters.** Young adulthood has changed dramatically over the past half century. Fifty years ago most young men and women left their parents’ home around the age of 18, went to college or started work, then got married and had children.

Today these milestones on the road toward independent adulthood are far more uncertain, and the dividing line between youth and adult has become less clear and less fixed. Economic hardship has made achieving the markers of adulthood especially difficult for those with fewer resources.

Young adults do commit a disproportionate amount of the nation’s crime. In fact, arrests and recidivism peak in this age group. Yet we know relatively little about the developmental factors that may contribute to this phenomenon. What is happening to the developing brain during this period? How do biological and psychological development interact with the surrounding culture? What are the individual’s capacities and needs as he or she prepares for adulthood? And what are the special challenges facing disadvantaged young adults? Answering questions like these will help meet the urgent need for programs that can help young adults at risk prepare for successful adulthood.

**What brain science is revealing.** Very few brain studies have compared individuals in the age group 18 to 21 with younger adolescents or with people in their mid-20s. What evidence there is, however, suggests that young adulthood is a distinct developmental period, and that young adults are different both from adolescents and from somewhat older adults in ways that are potentially relevant to justice policy.

Researchers have found that in young adulthood, as in adolescence, areas of the brain that regulate functions like judgment and self-control are still not fully mature. In certain emotionally charged situations, the capacity of young adults to regulate their actions and emotions appears more like that of teens than adults in their mid 20s or older. Work by members of the MacArthur Foundation Research Network on Law and Neuroscience suggests that young adults’ propensity for risky behaviors, in particular, depends on emotional context.

When young adults feel threatened, they become more impulsive and more likely to take risks. However, their decision-making appears less influenced by peers than is that of adolescents. These new findings are especially important to justice

policy, which often addresses emotionally charged situations. Still to be explored are questions of brain development that could shed light on young adults' potential for rehabilitation.

## JUSTICE POLICY AND YOUNG ADULTS

Viewing young adulthood as a distinct and critical developmental period suggests the need to consider justice policies tailored to this group of young offenders. This is especially important in light of the economic and demographic changes described earlier and their disproportionate harmful impact on low-income youth and youth of color. Ongoing brain maturation in young adulthood has implications for policies related to culpability and punishment, and especially for rehabilitation—policies that give young adults the opportunity to stop offending and become contributing members of society.

At this time there is not a lot of evidence about what kinds of reforms will work best for young adults. We can say with some confidence, however, that treating young adults like older prisoners does not reduce recidivism. Reforms could begin by using less harsh sanctions (such as limited sentences and community-based alternatives) for less serious, non-violent crimes, and by investing in correctional programs and settings specifically designed to address the needs of this group of offenders. Perhaps more challenging will be to design effective educational, vocational, and social skills programs to prepare these individuals for the future. Shielding

young adults from the collateral consequences of having a criminal record would facilitate their access to education, employment, and housing.

Finally, because of young offenders' capacity for change, and the likelihood that many of them will stop committing crimes as they mature, it makes sense to consider special, expedited parole policies that allow young adults to demonstrate that they are no longer a threat to society. For the same reason, lawmakers should consider excluding people between 18 and 21 from the mandatory minimum sentences currently imposed on adults.

## CONCLUSION

Developmental knowledge continues to grow in depth and breadth. It has already had a significant impact on juvenile law and policy, and has the potential to influence policy responses to young adult crime. While researchers are just beginning to look at young adulthood as a distinct phase of development, the work is providing a basis for rethinking the ways in which young adults who break the law are treated. Understanding the processes that underlie youthful offending will help policymakers and the public make better decisions about how young offenders should be treated in the justice system, with the goal of helping them reach their full potential while reducing crime and enhancing public safety. Research on young offenders is an investment in their future and ours.

### For further reading

[\*When Does a Juvenile Become an Adult? Implications for Law and Policy\*](#), A. Cohen, R. Bonnie, K. Taylor-Thompson, & B.J. Casey, 88 *Temple Law Review* 769 (2016).

[\*When Is an Adolescent an Adult? Assessing Cognitive Control in Emotional and Nonemotional Context\*](#), A. Cohen, K. Breiner, L. Steinberg, R. Bonnie, E. Scott, K. Taylor-Thompson, M. Rudolph, J. Chein, J. Richeson, A. Heller, M. Silverman, D. Dellarco, D. Fair, A. Galván, & B.J. Casey, *Psychological Science* (2016).

[\*Young Adulthood as a Transitional Legal Category: Science, Social Change and Justice Policy\*](#), E. Scott, et al. 85 *Fordham Law Review* 641 (2016).

[\*Juvenile Sentencing Reform in a Constitutional Framework\*](#), E. Scott, T. Grisso, M. Levick, & L. Steinberg, 88 *Temple Law Review* 657 (2016).

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