UNC SCHOOL OF GOVERNMENT

2016 Intensive Juvenile Defender Training

March 9-11, 2016 / Greensboro, NC & Chapel Hill, NC

ELECTRONIC PROGRAM MATERIALS*

*This PDF file contains "bookmarks," which serve as a clickable table of contents that allows you to easily skip around and locate documents within the larger file. A bookmark panel should automatically appear on the left-hand side of this screen. If it does not, click the icon—located on the left-hand side of the open PDF document—that looks like a dog-eared page with a ribbon hanging from the top.

UNC SCHOOL OF GOVERNMENT

2016 Intensive Juvenile Defender Training

March 9-11, 2016
Regional Juvenile Detention Center, Greensboro & UNC School of Government, Chapel Hill

Cosponsored by the UNC-Chapel Hill School of Government
& the Office of Indigent Defense Services

Wednesday, March 9

12:00 – 1:00	Check-in Regional Juvenile Detention Center, Greensboro, NC
1:00 – 1:15	Welcoming Remarks *Austine Long, Program Attorney* *UNC School of Government, Chapel Hill, NC*
1:15 – 2:15	**Kids Are Different (Adolescent Brain Development)** (60 min.) *Ayesha Chaudhary, Forensic Psychiatrist* *Duke University, Durham, NC*
2:15 – 3:15	**Detention Advocacy** (60 min.) *Mitch Feld, Director of Children's Defense* *Council for Children's Rights, Charlotte, NC*
3:15 – 3:30	Break *(light snack provided)*
3:30– 5:15	**Regional Juvenile Detention Center Policies & Procedures & Tour of the Facility** *Doug Logan, Manager* (105 min.) *Greensboro, NC*

Thursday, March 10

9:00 – 10:00	**Overview of Juvenile Delinquency Proceedings (60 min.)** *LaToya Powell, Professor of Public Law and Government* *UNC School of Government, Chapel Hill, NC*
10:00 – 11:00	**Developing a Pre-Adjudication Investigation & Discovery Plan (60 min.)** *Mary Stansell, Assistant Public Defender* *Office of the Public Defender, Raleigh, NC*
11:00 – 11:15	Break
11:15 – 12:45	**WORKSHOP: Developing a Pre-Adjudication Investigation and Discovery Plan (90 min.)**
12:45 – 1:45	Lunch *(provided in building)**
1:45 – 2:30	**Evidence Blocking (45 min.)** *John Rubin, Professor* *UNC School of Government, Chapel Hill, NC*
2:30 – 3:30	**Suppression Issues: Search and Seizure & Interrogations (60 min.)** *Kellie Mannette, Attorney* *Mannette & Thomas, PLLC, Chapel Hill and Raleigh, NC*
3:30 – 3:45	Break
3:45 – 5:15	**WORKSHOP: Motions to Suppress and Evidence Blocking (90 min.)**

**IDS employees may not claim reimbursement for lunch*

Friday, March 11

9:00 – 9:30	**Calculating Your Client's Prior Delinquency History Level (30 min.)** *Austine Long, Program Attorney* *UNC School of Government, Chapel Hill, NC*
9:30 – 10:15	**Disposition Options and Advocacy (45 min.)** *Kim Howes, Assistant Juvenile Defender* *Indigent Defense Services, Durham, NC*
10:15 – 10:30	Break
10:30 – 11:15	**Post Disposition and Probation Violations (45 min.)** *Phylicia Powers, Assistant Public Defender* *Office of the Public Defender, Durham, NC*
11:15– 12:15	**Ethics and the Role of Counsel in Delinquency Proceedings** (Ethics) **(60 min.)** *Dr. Anne M. Corbin, Researcher/Adjunct Faculty* *Norwich University, Northfield, VT*
12:15	Closing Remarks; Certificates

	CLE Hours:
Wednesday:	3.75
Thursday:	6.75
Friday:	3.00
Web Module:*	.50
Total hours:	**14.00**
(*Includes 1.0 hour of ethics*)	

**"Delinquency Dispositions Module 3: Determining Dispositional Options" (.5 hour).*
All students will receive a link to this online presentation for viewing before the training.

UNC SCHOOL OF GOVERNMENT

ONLINE RESOURCES FOR INDIGENT DEFENDERS

ORGANIZATIONS

NC Office of Indigent Defense Services
http://www.ncids.org/

UNC School of Government
http://www.sog.unc.edu/

Indigent Defense Education at the UNC School of Government
https://www.sog.unc.edu/resources/microsites/indigent-defense-education

TRAINING

Calendar of Live Training Events
https://www.sog.unc.edu/resources/microsites/indigent-defense-education/calendar-live-events

Online Training
https://www.sog.unc.edu/resources/microsites/indigent-defense-education/online-training-cles

MANUALS

Orientation Manual for Assistant Public Defenders
https://www.sog.unc.edu/resources/microsites/indigent-defense-education/orientation-manual-assistant-public-defenders-introduction

Indigent Defense Manual Series (collection of reference manuals addressing law and practice in areas in which indigent defendants and respondents are entitled to representation of counsel at state expense)
http://defendermanuals.sog.unc.edu/

UPDATES

On the Civil Side Blog
http://civil.sog.unc.edu/

NC Criminal Law Blog
https://www.sog.unc.edu/resources/microsites/criminal-law-north-carolina/criminal-law-blog

Criminal Law in North Carolina Listserv (to receive summaries of criminal cases as well as alerts regarding new NC criminal legislation)
http://www.sog.unc.edu/crimlawlistserv

TOOLS and RESOURCES

Collateral Consequences Assessment Tool (centralizes collateral consequences imposed under NC law and helps defenders advise clients about the impact of a criminal conviction)
http://ccat.sog.unc.edu/

Motions, Forms, and Briefs Bank
https://www.sog.unc.edu/resources/microsites/indigent-defense-education/motions-forms-and-briefs

Training and Reference Materials Index (includes manuscripts and materials from past trainings co-sponsored by IDS and SOG)
http://www.ncids.org/Defender%20Training/Training%20Index.htm

KIDS ARE DIFFERENT (ADOLESCENT BRAIN DEVELOPMENT)

Available online at www.sciencedirect.com
ScienceDirect
Developmental Review 28 (2008) 78–106
DEVELOPMENTAL REVIEW
www.elsevier.com/locate/dr

A social neuroscience perspective on adolescent risk-taking

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Abstract

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

Keywords: Adolescents; Risk-taking; Social neuroscience; Reward-seeking; Self-regulation; Prefrontal cortex; Peer influence; Decision making; Dopamine; Oxytocin; Brain development

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Introduction

Adolescent risk-taking as a public health problem

It is widely agreed among experts in the study of adolescent health and development that the greatest threats to the well-being of young people in industrialized societies come from preventable and often self-inflicted causes, including automobile and other accidents (which together account for nearly half of all fatalities among American youth), violence, drug and alcohol use, and sexual risk-taking (Blum & Nelson-Mmari, 2004; Williams, Holmbeck, & Greenley, 2002). Thus, while considerable progress has been made in the prevention and treatment of disease and chronic illness among this age group, similar gains have not been made with respect to reducing the morbidity and mortality that result from risky and reckless behavior (Hein, 1988). Although rates of certain types of adolescent risk-taking, such as driving under the influence of alcohol or having unprotected sex, have dropped, the prevalence of risky behavior among teenagers remains high, and there has been no decline in adolescents' risk behavior in several years (Centers for Disease Control & Prevention, 2006).

It is also the case that adolescents engage in more risky behavior than adults, although the magnitude of age differences in risk-taking vary as a function of the specific risk in question and the age of the "adolescents" and "adults" used as comparison groups; rates of risk-taking are high among 18- to 21-year-olds, for instance, some of whom may be classified as adolescents and some who may be classified as adults. Nonetheless, as a general rule, adolescents and young adults are more likely than adults over 25 to binge drink, smoke cigarettes, have casual sex partners, engage in violent and other criminal behavior, and have fatal or serious automobile accidents, the majority of which are caused by risky driving or driving under the influence of alcohol. Because many forms of risk behavior initiated in adolescence elevate the risk for the behavior in adulthood (e.g., drug use), and because some forms of risk-taking by adolescents put individuals of other ages at risk (e.g., reckless driving, criminal behavior), public health experts agree that reducing the rate risk-taking by young people would make a substantial improvement in the overall well-being of the population (Steinberg, 2004).

False leads in the prevention and study of adolescent risk-taking

The primary approach to reducing adolescent risk-taking has been through educational programs, most of them school-based. There is reason to be highly skeptical about the effectiveness of this effort, however. According to AddHealth data (Bearman, Jones, & Udry, 1997), virtually all American adolescents have received some form of educational intervention designed to reduce smoking, drinking, drug use, and unprotected sex, but the most recent report of findings from the Youth Risk Behavior Survey, conducted by the Centers for Disease Control and Prevention, indicates that more than one-third of high school students did not use a condom either the first time or even the last time they had sexual intercourse, and that during the year prior to the survey, nearly 30% of adolescents rode in a car driven by someone who had been drinking, more than 25% reported multiple episodes of binge drinking, and nearly 25% were regular cigarette smokers (Centers for Disease Control & Prevention, 2006).

Although it is true, of course, that the situation might be even worse were it not for these educational efforts, most systematic research on health education indicates that even the best programs are far more successful at changing individuals' knowledge than in altering their behavior (Steinberg, 2004, 2007). Indeed, well over a billion dollars each year are spent educating adolescents about the dangers of smoking, drinking, drug use, unprotected sex, and reckless driving—all with surprisingly little impact. Most taxpayers would be surprised—perhaps shocked—to learn that vast expenditures of public dollars are invested in health, sex, and driver education programs that either do not work, such as D.A.R.E. (Ennett, Tobler, Ringwalt, & Flewelling, 1994), abstinence education (Trenholm et al., 2007), or driver training (National Research Council, 2007), or are at best of unproven or unstudied effectiveness (Steinberg, 2007).

The high rate of risky behavior among adolescents relative to adults, despite massive, ongoing, and costly efforts to educate teenagers about its potentially harmful consequences, has been the focus of much theorizing and empirical research by developmental scientists for at least 25 years. Most of this work has been informative, but in an unexpected way. In general, where investigators have looked to find differences between adolescents and adults that would explain the more frequent risky behavior of youth, they have come up empty handed. Among the widely-held beliefs about adolescent risk-taking that have *not* been supported empirically are (a) that adolescents are irrational or deficient in their information processing, or that they reason about risk in fundamentally different ways than adults; (b) that adolescents do not perceive risks where adults do, or are more likely to believe that they are invulnerable; and (c) that adolescents are less risk-averse than adults. None of these assertions is correct: The logical reasoning and basic information-processing abilities of 16-year-olds are comparable to those of adults; adolescents are no worse than adults at perceiving risk or estimating their vulnerability to it (and, like adults, *over*estimate the dangerousness associated with various risky behaviors); and increasing the salience of the risks associated with making a poor or potentially dangerous decision has comparable effects on adolescents and adults (Millstein & Halpern-Felsher, 2002; Reyna & Farley, 2006; Steinberg & Cauffman, 1996; see also Rivers, Reyna, & Mills, 2008, this issue). Indeed, most studies find few, if any, age differences in individuals' evaluations of the risks inherent in a wide range of dangerous behaviors (e.g., driving while drunk, having unprotected sex), in their judgments about the seriousness of the consequences that might result from risky behavior, or in the ways that they evaluate the relative costs and benefits of these activities (Beyth-Marom, Austin, Fischoff, Palmgren, & Jacobs-Quadrel, 1993). In sum, adolescents' greater involvement than adults in risk-taking does not stem from ignorance, irrationality, delusions of invulnerability, or faulty calculations (Reyna & Farley, 2006).

The fact that adolescents are knowledgeable, logical, reality-based, and accurate in the ways in which they think about risky activity—or, at least, as knowledgeable, logical, reality-based, and accurate as their elders—but engage in higher rates of risky behavior than adults raises important considerations for both scientists and practitioners. For the former, this observation pushes us to think differently about the factors that may contribute to age differences in risky behavior and to ask what it is that changes between adolescence and adulthood that might account for these differences. For the latter, it helps explain why educational interventions have been so limited in their success, suggests that providing adolescents with information and decision-making skills may be a misguided strategy, and argues that we need a new approach to public

health interventions aimed at reducing adolescent risk-taking if it is adolescents' actual behavior that we wish to change.

These sets of scientific and practical considerations form the basis for this article. In it, I argue that the factors that lead adolescents to engage in risky activity are social and emotional, not cognitive; that the field's emerging understanding of brain development in adolescence suggests that immaturity in these realms may have a strong maturational and perhaps unalterable basis; and that efforts to prevent or minimize adolescent risk-taking should therefore focus on changing the context in which risky activity takes place rather than mainly attempting, as current practice does, to change what adolescents know and the ways they think.

A social neuroscience perspective on adolescent risk-taking

Advances in the developmental neuroscience of adolescence

The last decade has been one of enormous and sustained interest in patterns of brain development during adolescence and young adulthood. Enabled by the growing accessibility and declining cost of structural and functional Magnetic Resonance Imaging (MRI) and other imaging techniques, such as Diffusion Tensor Imaging (DTI), an expanding network of scientists have begun to map out the course of changes in brain structure between childhood and adulthood, describe age differences in brain activity during this period of development, and, to a more modest degree, link findings on the changing morphology and functioning of the brain to age differences in behavior. Although it is wise to heed the cautions of those who have raised concerns about "brain overclaim" (Morse, 2006), there is no doubt that our understanding of the neural underpinnings of adolescent psychological development is shaping—and reshaping—the ways in which developmental scientists think about normative (Steinberg, 2005) and atypical (Steinberg et al., 2006) development in adolescence.

It is important to point out that our knowledge of changes in brain structure and function during adolescence far exceeds our understanding of the actual links between these neurobiological changes and adolescent behavior, and that much of what is written about the neural underpinnings of adolescent behavior—including a fair amount of this article—is what we might characterize as "reasonable speculation." Frequently, contemporaneous processes of adolescent neural and behavioral development—for example, the synaptic pruning that occurs in the prefrontal cortex during adolescence and improvements in long-term planning—are presented as causally linked without hard data that even correlates these developments, much less demonstrates that the former (brain) influences the latter (behavior), rather than the reverse. It is therefore wise to be cautious about simple accounts of adolescent emotion, cognition, and behavior that attribute changes in these phenomena directly to changes in brain structure or function. Readers of a certain age are reminded of the many premature claims that characterized the study of hormone–behavior relationships in adolescence that appeared in the developmental literature in the mid-1980s soon after techniques for performing salivary assays became widespread and relatively inexpensive, much as brain imaging techniques have in the last decade. Alas, the search for direct hormone–behavior linkages proved more difficult and less fertile than many scientists had hoped (Buchanan, Eccles, & Becker, 1992), and there are few effects of hormones on adolescent behavior that are not conditioned on the environment in which

the behavior occurs; even something as hormonally driven as libido only affects sexual behavior in the right context (Smith, Udry, & Morris, 1985). There is no reason to expect that brain–behavior relationships will be any less complicated. There is, after all, a long history of failed attempts to explain everything adolescent as biologically determined dating back not only to Hall (1904), but to early philosophical treatises on the period (Lerner & Steinberg, 2004). These caveats notwithstanding, the current state of our knowledge about adolescent brain development (both structural and functional) and possible brain–behavior links during this period, although incomplete, is nonetheless sufficient to offer some insight into "emerging directions" in the study of adolescent risk-taking.

The aim of this article is to provide a review of the most important discoveries in our understanding of adolescent brain development relevant to the study of adolescent risk-taking and to sketch out a rudimentary framework for theory and research on risk-taking that is informed by developmental neuroscience. Before proceeding, a few words about this point of view are in order. Any behavioral phenomenon can be studied at multiple levels. The development of risk-taking in adolescence, for example, can be approached from a psychological perspective (focusing on increases in emotional reactivity that may underlie risky decision-making), a contextual perspective (focusing on interpersonal processes that influence risky behavior), or a biological perspective (focusing on the endocrinology, neurobiology, or genetics of sensation-seeking). All of these levels of analysis are potentially informative, and most scholars of adolescent psychopathology agree that the study of psychological disorder has profited from cross-fertilization among these various approaches (Cicchetti & Dawson, 2002).

My emphasis on the neurobiology of adolescent risk-taking in this review is not intended to downplay the importance of studying the psychological or contextual aspects of the phenomenon, any more than studying changes in neuroendocrine functioning in adolescence that might increase vulnerability to depression (e.g., Walker, Sabuwalla, & Huot, 2004) would obviate the need to study the psychological or contextual contributors to, manifestations of, or treatment of the illness. Nor does my focus on the neurobiology of adolescent risk-taking reflect a belief in the primacy of biological explanation over other forms of explanation, or a subscription to a naïve form of biological reductionism. At some level, of course, every aspect of adolescent behavior has a biological basis; what matters is whether understanding the biological basis helps us understand the psychological phenomenon. My point, though, is that any psychological theory of adolescent risk-taking needs to be consistent with what we know about neurobiological functioning during this time period (just as any neurobiological theory ought to be consistent with what we know about psychological functioning), and that most extant psychological theories of adolescent risk-taking, in my view, do not map well onto what we know about adolescent brain development. To the extent that these theories are inconsistent with what we know about brain development they are likely to be wrong, and so long as they continue to inform the design of preventive interventions, these interventions unlikely to be effective.

A tale of two brain systems

Two fundamental questions about the development of risk-taking in adolescence motivate this review. First, why does risk-taking increase between childhood and adolescence? Second, why does risk-taking decline between adolescence and adulthood? I believe that

developmental neuroscience provides clues that may lead us toward an answer to both questions.

In brief, risk-taking increases between childhood and adolescence as a result of changes around the time of puberty in what I refer to as the brain's *socio-emotional system* that lead to increased reward-seeking, especially in the presence of peers. Risk-taking declines between adolescence and adulthood because of changes in what I refer to as the brain's *cognitive control system*—changes which improve individuals' capacity for self-regulation, which occur gradually and over the course of adolescence and young adulthood. The differing timetables of these changes—the increase in reward-seeking, which occurs early and is relatively abrupt, and the increase in self-regulatory competence, which occurs gradually and is not complete until the mid-20s, makes mid-adolescence a time of heightened vulnerability to risky and reckless behavior.

Why does risk-taking increase between childhood and adolescence?

In my view, the increase in risk-taking between childhood and adolescence is due primarily to increases in sensation seeking that are linked to changes in patterns of dopaminergic activity around the time of puberty. Interestingly, however, as I shall explain, although this increase in sensation-seeking is coincident with puberty, it is not entirely caused by the increase in gonadal hormones that takes place at this time, as is widely assumed. Nonetheless, there is some evidence that the increase in sensation-seeking that takes place in adolescence is correlated more with pubertal maturation than with chronological age (Martin et al., 2002), which argues against accounts of adolescent risk-taking that are solely cognitive, given that there is no evidence linking changes in thinking in adolescence to pubertal maturation.

Remodeling of the dopaminergic system at puberty

Important developmental changes in the dopaminergic system take place at puberty (Chambers, Taylor, & Potenza, 2003; Spear, 2000). Given the critical role of dopaminergic activity in affective and motivational regulation, these changes likely shape the course of socioemotional development in adolescence, because the processing of social and emotional information relies on the networks underlying coding for affective and motivational processes. Key nodes of these networks comprise the amygdala, nucleus accumbens, orbitofrontal cortex, medial prefrontal cortex, and superior temporal sulcus (Nelson, Leibenluft, McClure, & Pine, 2005). These regions have been implicated in diverse aspects of social information processing, including the recognition of socially relevant stimuli (e.g. faces, Hoffman & Haxby, 2000; biological motion, Heberlein, Adolphs, Tranel, & Damasio, 2004), social judgments (appraisal of others, Ochsner, Bunge, Gross, & Gabrieli, 2002; judging attractiveness, Aharon et al., 2001; evaluating race, Phelps et al., 2000; assessing others' intentions, Baron-Cohen, Tager-Flusberg, & Cohen, 1999; Gallagher, 2000), social reasoning (Rilling et al., 2002), and many other aspects of social information processing (for a review, see Adolphs, 2003). Importantly, among adolescents the regions that are activated during exposure to social stimuli overlap considerably with regions also shown to be sensitive to variations in reward magnitude, such as the ventral striatum and medial prefrontal areas (cf. Galvan et al., 2005; Knutson, Westdorp, Kaiser, & Hommer, 2000; May et al., 2004). Indeed, a recent study of adolescents engaged in a task in which peer

acceptance and rejection were experimentally manipulated (Nelson et al., 2007) revealed greater activation when subjects were exposed to peer acceptance, relative to rejection, within brain regions implicated in reward salience (i.e., the ventral tegmental area, extended amygdala, and ventral pallidum). Because these same regions have been implicated in many studies of reward-related affect (cf., Berridge, 2003; Ikemoto & Wise, 2004; Waraczynski, 2006), these findings suggest that, at least in adolescence, social acceptance by peers may be processed in ways similar to other sorts of rewards, including non-social rewards (Nelson et al., 2007). As I explain later, this overlap between the neural circuits that mediate social information processing and reward processing helps to explain why so much adolescent risk-taking occurs in the context of the peer group.

The remodeling of the dopaminergic system within the socio-emotional network involves an initial post-natal rise and then, starting at around 9 or 10 years of age, a subsequent reduction of dopamine receptor density in the striatum and prefrontal cortex, a transformation that is much more pronounced among males than females (at least in rodents) (Sisk & Foster, 2004; Sisk & Zehr, 2005; Teicher, Andersen, & Hostetter, 1995). Importantly, however, the extent and timing of increases and decreases in dopamine receptors differ between these cortical and subcortical regions; there is some speculation that it is changes in the *relative* density of dopamine receptors in these two areas that underlies changes in reward processing in adolescence. As a result of this remodeling, dopaminergic activity in the prefrontal cortex increases significantly in early adolescence and is higher during this period than before or after. Because dopamine plays a critical role in the brain's reward circuitry, the increase, reduction, and redistribution of dopamine receptor concentration around puberty, especially in projections from the limbic system to the prefrontal area, may have important implications for sensation-seeking.

Several hypotheses concerning the implications of these changes in neural activity have been offered. One hypothesis is that the temporary imbalance of dopamine receptors in the prefrontal cortex relative to the striatum creates a "reward deficiency syndrome," producing behavior among young adolescents that is not unlike that seen among individuals with certain types of functional dopamine deficits. Individuals with this syndrome have been postulated to "actively seek out not only addicting drugs but also environmental novelty and sensation as a type of behavioral remediation of reward deficiency" (Gardner, 1999, cited in Spear, 2002, p. 82). If a similar process takes place at puberty, we would expect to see increases in reward salience (the degree to which adolescents are attentive to rewards and sensitive to variations in rewards) and in reward-seeking (the extent to which they pursue rewards). As Spear writes:

> [A]dolescents may generally attain less positive impact from stimuli with moderate to low incentive value, and may pursue new appetitive reinforcers through increases in risk taking/novelty seeking and via engaging in deviant behaviors such as drug taking. The suggestion is thus that adolescents display a mini-'reward deficiency syndrome' which is similar, albeit typically transient and of lesser intensity, to that hypothesized to be associated in adults with [dopamine] hypofunctioning in reward circuitry. ... Indeed, adolescents appear to show some signs of attaining less appetitive value from a variety of stimuli relative to individuals at other ages, perhaps leading them to seek additional appetitive reinforcers via pursuit of new social interactions and engagement in risk taking or novelty seeking behaviors. Such adolescent-typical features may have been adaptive evolutionarily in helping adolescents

> to disperse from the natal unit and to negotiate with success the developmental transition from dependence to independence. In the human adolescent, these propensities may be expressed, however, in alcohol and drug use, as well as a variety of other problem behaviors (2000, pp. 446–447).

The notion that adolescents suffer from a "reward deficiency syndrome," although intuitively appealing, is undermined by several studies that indicate elevated activity in subcortical regions, especially the accumbens, in response to reward during adolescence (Ernst et al., 2005; Galvan et al., 2006). An alternative account is that the increase in sensation-seeking in adolescence is due not to functional dopamine deficits but to a temporary loss of "buffering capacity" associated with the disappearance of dopamine autoreceptors in the prefrontal cortex that serve a regulatory negative-feedback function during childhood (Dumont, Andersen, Thompson, & Teicher, 2004, cited in Ernst and Spear, in press). This loss of buffering capacity, resulting in diminished inhibitory control of dopamine release, would result in relatively higher levels of circulating dopamine in prefrontal regions in response to comparable degrees of reward during adolescence than would be the case during childhood or adulthood. Thus, the increase in sensation-seeking seen during adolescence would not be the result, as has been speculated, of a decline in the "rewardingness" of rewarding stimuli that drives individuals to seek higher and higher levels of reward (as would be predicted if adolescents were especially likely to suffer from a "reward deficiency syndrome"), but to an increase in the sensitivity and efficiency of the dopaminergic system, which, in theory, would make potentially rewarding stimuli experienced as more rewarding and thereby heighten reward salience. This account is consistent with the observation of increased dopaminergic innervation in the prefrontal cortex during adolescence (Rosenberg & Lewis, 1995), despite a reduction in dopamine receptor density.

Steroid-independent and steroid-dependent processes

I noted earlier that it is common to attribute this dopaminergic-mediated change in reward salience and reward-seeking to the impact of pubertal hormones on the brain, an attribution that I myself made in earlier writings on the subject (e.g., Steinberg, 2004). Although this remodeling is coincident with puberty, however, it is not clear that it is directly caused by it. Animals that have had their gonads removed prepubertally (and thus do not experience the increase in sex hormones associated with pubertal maturation) show the same patterns of dopamine receptor proliferation and pruning as animals who have not been gonadectomized (Andersen, Thompson, Krenzel, & Teicher, 2002). Thus it is important to distinguish between puberty (the process that leads to reproductive maturation) and adolescence (the behavioral, cognitive, and socioemotional changes of the period) which are not the same thing, either conceptually or neurobiologically. As Sisk and Foster explain, "gonadal maturation and behavioral maturation are two distinct brain-driven processes with separate timing and neurobiological mechanisms, but they are intimately coupled through iterative interactions between the nervous system and gonadal steroid hormones" (Sisk & Foster, 2004, p. 1040). Thus, there may well be a maturationally-driven increase in reward salience and reward seeking in early adolescence that has a strong biological basis and, that is contemporaneous with puberty, but that may only be partially related to changes in gonadal hormones in early adolescence.

In point of fact, many behavioral changes that occur at puberty (and that are sometimes mistakenly attributed to puberty) are pre-programmed by a biological clock whose timing makes them coincident with, but independent of, changes in pubertal sex hormones. Accordingly, some changes in adolescent neurobiological and behavioral functioning at puberty are steroid-independent, others are steroid-dependent, and others are the product of an interaction between the two (where steroid independent processes affect susceptibility to steroid-dependent ones) (Sisk & Foster, 2004). Moreover, within the category of steroid-dependent changes are those that are the outcome of hormonal influences on brain organization during the pre- and perinatal periods, which set in motion changes in behavior that do not manifest themselves until puberty (referred to as organizational effects of sex hormones); changes that are the direct result of hormonal influences at puberty (both on brain organization and on psychological and behavioral functioning, the latter of which are referred to as activational effects); and changes that are the result of the interaction between organizational and activational influences. Even changes in sexual behavior, for example, which we normally associate with the hormonal changes of puberty, is regulated by a combination of organizational, activational, and steroid-independent processes. At this point, the extent to which changes in dopaminergic functioning at puberty are (1) steroid-independent, (2) due to the organizational effects of exposure to sex steroids (either early in life or during adolescence, which may build on or amplify early organizational influences), (3) due to the activational influences of sex steroids at puberty, or more likely, (4) due to some mix of these factors has not been determined. It may be the case, for instance, that the structural remodeling of the dopaminergic system is not influenced by gonadal steroids at puberty but that its functioning is (Cameron, 2004; Sisk & Zehr, 2005).

There is also reason to hypothesize that sensitivity to the organizational effects of pubertal hormones decreases with age (see Schulz & Sisk, 2006), suggesting that the impact of pubertal hormones on reward-seeking might be stronger among early maturers than on-time or late maturers. Early maturers may also be at heightened risk for risk-taking because there is a longer temporal gap between the change in the dopaminergic system and the full maturation of the cognitive control system. Given these biological differences, we would therefore expect to see higher rates of risk-taking among early maturing adolescents than among their same-aged peers (again, arguing against a purely cognitive account of adolescent recklessness, since there are no major differences in cognitive performance between early and late physical maturers), as well as a drop over historical time in the age of initial experimentation with risky behavior, because of the secular trend toward the earlier onset of puberty. (The average age of menarche in industrialized nations declined by about 3–4 months per decade during the first part of the 20th century and continued to drop between the 1960s and 1990s, by about 2½ months in total [see Steinberg, 2008]). There is clear evidence for both of these predictions: Early maturing boys and girls report higher rates of alcohol and drug use, delinquency, and problem behavior, a pattern seen in different cultures and across different ethnic groups within the United States (Collins & Steinberg, 2006; Deardorff, Bonzales, Christopher, Roosa, & Millsap, 2005; Steinberg, 2008), and the age of experimentation with alcohol, tobacco, and illegal drugs (as well as the age of sexual debut) clearly has declined over time (Johnson & Gerstein, 1998), consistent with the historical decline in the age of pubertal onset.

Adolescent sensation-seeking and evolutionary adaptation

Although structural changes in the dopaminergic system that occur at puberty may not be directly due to the activational influences of pubertal hormones, it nevertheless makes good evolutionary sense that the emergence of some behaviors, such as sensation-seeking, occur around puberty, especially among males (among whom the dopaminergic remodeling is more pronounced, as noted earlier) (see also Spear, 2000). Sensation-seeking, because it involves ventures into uncharted waters, carries with it a certain degree of risk, but such risk-taking may be necessary in order to survive and facilitate reproduction. As Belsky and I have written elsewhere, "The willingness to take risks, even life-threatening risks, might well have proved advantageous to our ancestors when refusing to incur such risk was in fact even more dangerous to survival or reproduction. However chancy running through a burning savannah or attempting to cross a swollen stream might have been, not doing so might have been even more risky" (Steinberg & Belsky, 1996, p. 96). To the extent that individuals inclined to take such risks were differentially advantaged when it came to surviving and producing descendants who would themselves survive and reproduce in future generations, natural selection would favor the preservation of inclinations toward at least some risk-taking behavior during adolescence, when sexual reproduction begins.

In addition to promoting survival in inherently risky situations, risk-taking might also confer advantages, especially upon males, by means of dominance displays and through a process called "sexual selection" (Diamond, 1992). With respect to the dominance displays, being willing to take risks might well have been a tactic for achieving and maintaining dominance in social hierarchies. Such means of status attainment and maintenance might have been selected for not only because they contributed to obtaining for oneself and one's kin a disproportionate share of physical resources (e.g., food, shelter, clothing), but because they also increased reproductive opportunities by preventing other males from mating. To the extent that dominance displays mediate the link between risk-taking and reproduction, it makes good evolutionary sense to delay the increase in risk-taking until pubertal maturation has taken place, so that risk-takers are more adult-like in strength and appearance.

With respect to sexual selection, displays of sensation-seeking by males may have sent messages about their desirability as a sexual partner to prospective mates. It makes biological sense for males to engage in those behaviors that attract females and for females to choose males most likely to bear offspring with high prospects of surviving and reproducing themselves (Steinberg & Belsky, 1996). In aboriginal societies that are studied by anthropologists to gain insight into the conditions under which human behavior evolved (e.g., the Ache in Venezuela; the Yamamano in Brazil; the !Kung in Africa), "young men are constantly being assessed as *prospects* by those who might select them as husbands and lovers..." (Wilson & Daly, 1993, p. 99, emphasis in original). Moreover, "prowess in hunting, warfare, and other dangerous activity is evidently a major determinant of young men's marriageability" (Wilson & Daly, 1993, p. 98). Readers skeptical of this evolutionary argument are reminded of the wealth of literary and cinematic allusions to the fact that adolescent girls find "bad boys" sexually appealing. Even in contemporary society, there is empirical evidence that adolescent girls prefer and find more attractive dominant and aggressive boys (Pellegrini & Long, 2003).

Although the notion that risk-taking is adaptive in adolescence makes more intuitive sense when applied to the analysis of male than female behavior, and although there is evidence that male adolescents engage in some forms of real-world risk-taking more frequently than females (Harris, Jenkins, & Glaser, 2006), sex differences in risk-taking are not always seen in laboratory studies of risk-taking (e.g., Galvan, Hare, Voss, Glover, & Casey, 2007). Moreover, higher levels of risk-taking among adolescents versus adults have been reported in studies of females as well as males (Gardner & Steinberg, 2005). The fact that the gender gap in real-world risk-taking appears to be narrowing (Byrnes, Miller, & Schafer, 1999) and that imaging studies employing risk-taking paradigms do not find gender differences (Galvan et al., 2007) suggests that sex differences in risky behavior may mediated more by context than by biology.

Changes in sensation seeking, risk-taking, and reward sensitivity in early adolescence

Several findings from a recent study my colleagues and I have conducted on age differences in capacities that likely affect risk-taking are consistent with the notion that early adolescence in particular is a time of important changes in individuals' inclinations toward and risk-taking (see Steinberg, Cauffman, Woolard, Graham, & Banich, submitted for publication for a description of the study). To my knowledge, this is one of the only studies of these phenomena with a sample that spans a wide enough age range (from 10 to 30 years) and is large enough ($N = 935$) to examine developmental differences across preadolescence, adolescence, and early adulthood. Our battery included a number of widely-used self-report measures, including the Benthin Risk Perception Measure (Benthin, Slovic, & Severson, 1993), the Barratt Impulsiveness Scale (Patton, Stanford, & Barratt, 1995), and the Zuckerman Sensation-Seeking Scale (Zuckerman, Eysenck, & Eysenck, 1978),[1] as well as several new ones developed for this project, including a measure of Future Orientation (Steinberg et al., submitted for publication) and a measure of Resistance to Peer Influence (Steinberg & Monahan, 2007). The battery also included numerous computer-administered performance tasks, including the Iowa Gambling Task, which measures reward sensitivity (Bechara, Damasio, Damasio, & Anderson, 1994); a Delay Discounting task, which measures relative preference for immediate versus delayed rewards (Green, Myerson, & Ostaszewski, 1999); and the Tower of London, which measures planning ahead (Berg & Byrd, 2002).

We found a curvilinear relation between age and the extent to which individuals reported that the benefits outweighed the costs of various risky activities, such as having unprotected sex or riding in a car driven by someone who had been drinking, and between age and self-reported sensation seeking (Steinberg, Albert et al., submitted for publication). Because our version of the Iowa Gambling Task permitted us to create independent measures of respondents' selection of decks that produced monetary gains versus their avoidance of decks that produced monetary losses, we could look separately at age differences in reward and punishment sensitivity. Interestingly, we found a curvilinear relation between age and reward sensitivity, similar to the pattern seen for risk preference and sen-

[1] Many of the items on the full Zuckerman scale appear to measure impulsivity, not sensation seeking (e.g., "I often do things on impulse.") Because we have a separate measure of impulsivity in our battery, we used only the Zuckerman items that clearly indexed thrill- or novelty-seeking (e.g., "I sometimes like to do things that are a little frightening.").

sation-seeking, but not between age and punishment sensitivity, which increased linearly (Cauffman et al., submitted for publication). More specifically, scores on sensation-seeking, risk preference, and reward sensitivity all increased from age 10 until mid-adolescence (peaking somewhere between 13 and 16, depending on the measure) and declined thereafter. Preference for short-term rewards in the Delay Discounting task was greatest among the 12- to 13-year-olds (Steinberg et al., submitted for publication), also consistent with heightened reward sensitivity around puberty. In contrast, scores on measures of other psychosocial phenomena, such as future orientation, impulse control, and resistance to peer influence, as well punishment sensitivity on the Iowa Gambling Task and planning on the Tower of London task, showed a linear increase over this same age period, suggesting that the curvilinear pattern observed with respect to sensation-seeking, risk preference, and reward sensitivity is not simply a reflection of more general psychosocial maturation. As I will explain, these two different patterns of age differences are consistent with the neurobiological model of developmental change in risk-taking I set forth in this article.

The increase in sensation-seeking, risk preference, and reward sensitivity between preadolescence and middle adolescence observed in our study is consistent with behavioral studies of rodents showing an especially significant increase in reward salience around the time of puberty (e.g., Spear, 2000). There is also evidence of a shift in the anticipation of consequences of risk-taking, with risky behavior more likely to be associated with the anticipation of negative consequences among children but with more positive consequences among adolescents, a developmental shift that is accompanied by an increase in activity in the nucleus accumbens during risk-taking tasks (Galvan et al., 2007).

Changes in neural oxytocin at puberty

The remodeling of the dopaminergic system is one of several important changes in synaptic organization that likely undergird the increase in risk-taking that takes place early in adolescence. Another important change in synaptic organization is more directly linked to the rise in gonadal hormones at puberty. In general, studies find that gonadal steroids exert a strong influence on memory for social information and on social bonding (Nelson et al., 2005), and that these influences are mediated, at least in part, through the influence of gonadal steroids on the proliferation of receptors for oxytocin (a hormone that also functions as a neurotransmitter) in various limbic structures, including the amygdala and nucleus accumbens. Although most work on changes in oxytocin receptors at puberty has examined the role of estrogen (e.g., Miller, Ozimek, Milner, & Bloom, 1989; Tribollet, Charpak, Schmidt, Dubois-Dauphin, & Dreifuss, 1989), there is also evidence of similar effects of testosterone (Chibbar, Toma, Mitchell, & Miller, 1990; Insel, Young, Witt, & Crews, 1993). Moreover, in contrast to studies of gonadectomized rodents, which indicate few effects of gonadal steroids at puberty on dopamine receptor remodeling (Andersen et al., 2002), experimental studies that manipulate gonadal steroids at puberty through post-gonadectomy administration of steroids indicate direct effects of estrogen and testosterone on oxytocin-mediated neurotransmission (Chibbar et al., 1990; Insel et al., 1993).

Oxytocin is perhaps best known for the role it plays in social bonding, especially with respect to maternal behavior, but it is also important in regulating the recognition and memory of social stimuli (Insel & Fernald, 2004; Winslow & Insel, 2004). As Nelson et al. note, "gonadal hormones have important effects on how structures within the [socio-emotional system] respond to social stimuli, and will ultimately influence the emo-

tional and behavioral responses elicited by a social stimulus during adolescence" (2005, p. 167). These hormonal changes help explain why, relative to children and adults, adolescents show especially heightened activation of limbic, paralimbic, and medial prefrontal areas in response to emotional and social stimuli, including faces with varying emotional expressions and social feedback. They also explain why early adolescence is a time of heightened awareness of others' opinions, so much so that adolescents often engage in "imaginary audience" behavior, which involves having such a strong sense of self-consciousness that the teenager imagines that his or her behavior is the focus of everyone else's concern and attention. Feelings of self-consciousness increase during early adolescence, peak around age 15, and then decline (Ranking, Lane, Gibbons, & Gerrard, 2004). This rise and fall in self-consciousness has been attributed both to changes in hypothetical thinking (Elkind, 1967) and to fluctuations in social confidence (Ranking et al., 2004), and although these may in fact be contributors to the phenomenon, the arousal of the socio-emotional network as a result of increases in pubertal hormones probably plays a role as well.

Peer influences on risk-taking

The proposed link between the proliferation of oxytocin receptors and increased risk-taking in adolescence is not intuitively obvious; indeed, given the importance of oxytocin in maternal bonding, one might predict just the reverse (i.e., it would be disadvantageous for mothers to engage in risky behavior while caring for highly dependent offspring). My argument is not that the increase in oxytocin leads to risk-taking, however, but that it leads to an increase in the salience of peer relations, and that this increase in the salience of peers plays a role in encouraging risky behavior.

The heightened attentiveness to social stimuli that results as a consequence of puberty is particularly important in understanding adolescent risk-taking. One of the hallmarks of adolescent risk-taking is that it is far more likely than that of adults to occur in groups. The degree to which an adolescent's peers use alcohol or illicit drugs is one of the strongest, if not the single strongest, predictors of that adolescent's own substance use (Chassin et al., 2004). Research on automobile accidents indicates that the presence of same-aged passengers in a car driven by an adolescent driver significantly increases the risk of a serious accident (Simons-Morton, Lerner, & Singer, 2005). Adolescents are more likely to be sexually active when their peers are (DiBlasio & Benda, 1992; East, Felice, & Morgan, 1993; Udry, 1987) and when they *believe* that their friends are sexually active, whether or not their friends actually are (Babalola, 2004; Brooks-Gunn & Furstenberg, 1989; DiIorio et al., 2001; Prinstein, Meade, & Cohen, 2003). And statistics compiled by the Federal Bureau of Investigation show quite compellingly that adolescents are far more likely than adults to commit crimes in groups than by themselves (Zimring, 1998).

There are several plausible explanations for the fact that adolescent risk-taking often occurs in groups. The relatively greater prevalence of group risk-taking observed among adolescents may stem from the fact that adolescents simply spend more time in peer groups than adults do (Brown, 2004). An alternative view is that the presence of peers activates the same neural circuitry implicated in reward processing, and that this impels adolescents toward greater sensation seeking. In order to examine whether the presence of peers plays an especially important role in risk-taking during adolescence, we conducted an experiment in which adolescents (mean age 14), youths (mean age 20), and adults

(mean age 34) were randomly assigned to complete a battery of computerized tasks under one of two conditions: alone or in the presence of two friends (Gardner & Steinberg, 2005). One of the tasks included in this study was a video driving game that simulates the situation in which one is approaching an intersection, sees a traffic light turn yellow, and tries to decide whether to stop or proceed through the intersection. In the task, a moving car is on the screen, and a yellow traffic light appears, signaling that at some point soon, a wall will appear and the car will crash. Loud music is playing in the background. As soon as the yellow light appears, participants must decide whether to keep driving or apply the brakes. Participants are told that the longer they drive, the more points they earn but that if the car crashes into the wall, all the points that have been accumulated are lost. The amount of time that elapses between the appearance of the light and the appearance of the wall is varied across trials, so there is no way to anticipate when the car will crash. Individuals who are more inclined to take risks in this game drive the car longer than those who are more risk averse. When subjects were alone, levels of risky driving were comparable across the three age groups. However, the presence of friends doubled risk-taking among the adolescents, increased it by fifty percent among the youths, but had no effect on the adults, a pattern that was identical among both males and females (not surprisingly, we did find a main effect for sex, with males taking more risks than females). The presence of peers also increased individuals' stated willingness to behave in an antisocial fashion significantly more among younger than older subjects, again, among both males and females.

Further evidence that the impact of peers on adolescent risk-taking may be neurally mediated by heightened activation of the socioemotional network comes from some pilot work we have conducted with two male 19-year-old subjects (Steinberg & Chein, 2006). In this work, we collected fMRI data while the subjects performed an updated version of the driving task, in which they encountered a series of intersections with traffic lights that turned yellow and had to decide whether to attempt to drive through the intersection (which would increase their reward if they made it through safely but decrease it if they crashed into an approaching car) or apply the brakes (which would decrease their reward but not as much as if they crashed the car). As in the Gardner and Steinberg (2005) study, subjects came to the lab with two friends, and we manipulated the peer context by having the peers either present in the magnet control room (viewing the subject's behavior on an external computer monitor and receiving a share of the subject's monetary incentives) or moved to an isolated room. Subjects performed two runs of the driving task in the peer-present condition, and two in the peer-absent condition; in the peer-present condition, they were told that their friends would be watching, and in the peer-absent condition, they were told that their friends would not be able to see their performance. Behavioral data collected from subjects in the scanner indicated an increase in risk-taking in the presence of peers that was similar in magnitude to that observed in the earlier study, as evidenced by an increase in the number of crashes and concomitant decrease in the frequency of braking when the traffic lights turned yellow.

Examination of the fMRI data indicated that the presence of peers activated certain regions that were not activated when the driving game was played in the peer-absent condition. As expected, regardless of peer condition, decisions in the driving task elicited a widely distributed network of brain regions including prefrontal and parietal association cortices (regions linked to cognitive control and reasoning). But in the peer-present condition, we also saw increased activity in the medial frontal cortex, left ventral striatum (primarily in the accumbens), left superior temporal sulcus, and left medial temporal

structures. In other words, the presence of peers activated the socio-emotional network and led to more risky behavior. This is pilot work, of course, so it is important to be very cautious in its interpretation. But the fact that the presence of peers activated the same circuitry that is activated by exposure to reward is consistent with the notion that peers may actually make potentially rewarding—and potentially risky—activities even more rewarding. In adolescence, then, more might not only be merrier—more may also be riskier.

Summary: Arousal of the socio-emotional system at puberty

In summary, there is strong evidence that the pubertal transition is associated with a substantial increase in sensation-seeking that is likely due to changes in reward salience and reward sensitivity resulting from a biologically-driven remodeling of dopaminergic pathways in what I have called the socio-emotional brain system. This neural transformation is accompanied by a significant increase in oxytocin receptors, also within the socio-emotional system, which in turn heightens adolescents' attentiveness to, and memory for, social information. As a consequence of these changes, relative to prepubertal individuals, adolescents who have gone through puberty are more inclined to take risks in order to gain rewards, an inclination that is exacerbated by the presence of peers. This increase in reward-seeking is most apparent during the first half of the adolescent decade, has its onset around the onset of puberty, and likely peaks sometime around age 15, after which it begins to decline. Behavioral manifestations of these changes are evident in a wide range of experimental and correlational studies using a diverse array of tasks and self-report instruments, are seen across many mammalian species, and are logically linked to well-documented structural and functional changes in the brain.

This set of assertions must be tempered, however, in view of the absence of direct evidence in humans that link the biology with the behavior. As noted earlier, the fact that particular sets of neurobiological and behavioral changes occur concurrently in development can only be taken as suggestive of a connection between them. More research that simultaneously examines brain structure function and its relation to risky behavior, either in studies of age differences or in studies of individual differences, is much needed.

It also is important to emphasize that, although the increase in sensation-seeking observed in early adolescence may be maturationally driven, all individuals do not manifest this inclination in the form of dangerous, harmful, or reckless behavior. As Dahl notes, "For some adolescents, this tendency to activate strong emotions and this affinity for excitement can be subtle and easily managed. In others these inclinations toward high-intensity feelings can lead to emotionally-charged and reckless adolescent behaviors and at times to impulsive decisions by (seemingly) intelligent youth that are completely outrageous" (2004, p. 8). Presumably, many factors moderate and modulate the translation of sensation seeking into risky behavior, including maturational timing (i.e., with early maturers at greater risk), opportunities to engage in antisocial risk-taking (e.g., the degree to which adolescents' behavior is monitored by parents and other adults, the availability of alcohol and drugs, and so forth), and temperamental predispositions that may amplify or attenuate tendencies to engage in potentially dangerous activities. Individuals who are behaviorally inhibited by nature, prone to high levels of anxiety, or especially fearful would be expected to shy away from harmful activities. For example, a recent follow-up of adolescents who had been highly reactive as infants (i.e., exhibiting high motor activity and frequent crying) found them to be significantly more nervous, introverted, and

morose than their counterparts who had been low-reactive (Kagan, Snidman, Kahn, & Towsley, 2007).

Why does risk-taking decline between adolescence and adulthood?

There are two plausible neurobiological processes that may help account for the decline in risky behavior that occurs between adolescence and adulthood. The first, which has received only scant attention, is that further changes in the dopaminergic system, or in reward processing that is mediated by some other neurotransmitter, take place in late adolescence that alter reward sensitivity, and, in turn, diminish reward-seeking. Little is known about changes in reward seeking after adolescence, however, and there remain inconsistencies in the literature with respect to age differences in reward sensitivity after adolescence (cf. Bjork et al., 2004; Ernst et al., 2005; Galvan et al., 2006), likely due to methodological differences between studies in the manipulation of reward salience (e.g., whether the comparison of interest is in reward versus cost or among rewards of different magnitudes) and whether the task involves the anticipation or actual receipt of the reward. Nevertheless, studies of age differences in sensation seeking (in addition to our own) show a decrease in this tendency after age 16 (Zuckerman et al., 1978), and there is some behavioral evidence (Millstein & Halpern-Felsher, 2002) suggesting that adolescents may be more sensitive than adults to variation in rewards and comparably or even less sensitive to variation in costs, a pattern borne out in our Iowa Gambling Task data (Cauffman et al., submitted for publication).

A more likely (although not mutually exclusive) cause of the decline in risky activity after adolescence concerns the development of self-regulatory capacities that occurs over the course of adolescence and during the 1920s. Considerable evidence suggests that higher level cognition, including the uniquely human capacities for abstract reasoning and deliberative action, is supported by a recently evolved brain system including the lateral prefrontal and parietal association cortices and parts of the anterior cingulate cortex to which they are highly interconnected. The maturation of this cognitive control system during adolescence is likely a primary contributor to the decline in risk-taking seen between adolescence and adulthood. This account is consistent with a growing body of work on structural and functional changes in the prefrontal cortex, which plays a substantial role in self-regulation, and in the maturation of neural connections between the prefrontal cortex and the limbic system, which permits the better coordination of emotion and cognition. These changes permit the individual to put the brakes on impulsive sensation-seeking behavior and to resist the influence of peers, which, together, should diminish risk-taking.

Structural maturation of the cognitive control system

Three important changes in brain structure during adolescence are now well-documented (see Paus, 2005, for a summary). First, there is a decrease in gray matter in prefrontal regions of the brain during adolescence, reflective of synaptic pruning, the process through which unused neuronal connections are eliminated. This elimination of unused neuronal connections occurs mainly during preadolescence and early adolescence, the period during which major improvements in basic information processing and logical reasoning are seen (Keating, 2004; Overton, 1990), consistent with the timetable for synaptic pruning in the prefrontal cortex, most of which is complete by mid-adolescence

(Casey, Tottenham, Liston, & Durston, 2005; see also Casey, Getz, & Galvan, 2008, this issue). Although some improvements in these cognitive capacities continue until age 20 or so (Kail, 1991, 1997), changes after mid-adolescence are very modest in magnitude and tend to be seen mainly in studies employing relatively demanding cognitive tasks on which performance is facilitated by greater connectivity among cortical areas, permitting more efficient processing (see below). In our study of capacities related to risk-taking described earlier, we saw no improvement in basic cognitive processes, such as working memory or verbal fluency, after age 16 (Steinberg, Cauffman et al. submitted for publication).

Second, there is an increase in white matter in these same regions, reflective of myelination, the process through which nerve fibers become sheathed in myelin, a fatty substance that provides a sort of insulation of the neural circuitry. Unlike the synaptic pruning of the prefrontal areas, which takes place early adolescence, myelination is ongoing well into the second decade of life and perhaps beyond (Lenroot et al., 2007). Improved connectivity within the prefrontal cortex should be associated with subsequent improvements in 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. In contrast to our findings with respect to basic information processing, which showed no maturation beyond age 16, we found continued improvement beyond this age in self-reported future orientation (which increased through age 18) and in planning (as indexed by the amount of time subjects waited before making their first move on the Tower of London task, which increased not only through adolescence but through the early 20s).

Generally speaking, performance on tasks that activate the frontal lobes continues to improve through middle adolescence (until about age 16 on tasks of moderate difficulty), in contrast to performance on tasks that activate more posterior brain regions, which reaches adult levels by the end of preadolescence (Conklin, Luciana, Hooper, & Yarger, 2007). Improved executive function in adolescence is reflected in better performance with age on tasks known to activate the dorsolateral prefrontal cortex, such as relatively difficult tests of spatial working memory (Conklin et al., 2007) or especially challenging tests of response inhibition (Luna et al., 2001); and the ventromedial prefrontal cortex, such as the Iowa Gambling Task (Crone & van der Molen, 2004; Hooper, Luciana, Conklin, & Yarger, 2004). Although some tests of executive function simultaneously activate both the dorsolateral and ventromedial regions, there is some evidence that the maturation of these regions may take place along somewhat different timetables, with performance on exclusively ventromedial tasks reaching adult levels somewhat earlier than performance on exclusively dorsolateral tasks (Conklin et al., 2007; Hooper et al., 2004). In one recent study of age differences in cognitive performance using tasks known to differentially activate these two prefrontal regions, there was age-related improvement into middle adolescence on both types of tasks, but there were no significant correlations between performance on the ventromedial and dorsolateral tasks, suggesting that maturation of the ventromedial prefrontal cortex may be a developmentally distinct process from the maturation of the dorsolateral prefrontal cortex (Hooper et al., 2004). Performance on especially difficult tasks known to activate dorsolateral areas continues to improve during late adolescence (Crone, Donohue, Honomichl, Wendelken, & Bunge, 2006; Luna et al., 2001).

Third, as evidenced in the proliferation of projections of white matter tracts across different brain regions, there is an increase not only in connections among cortical areas (and between different areas of the prefrontal cortex), but between cortical and subcortical

areas (and, especially, between the prefrontal regions and the limbic and paralimbic areas, including the amygdala, nucleus accumbens, and hippocampus) (Eluvathingal, Hasan, Kramer, Fletcher, & Ewing-Cobbs, 2007). This third anatomical change should be associated with improved coordination of affect and cognition, and reflected in improved emotion regulation, facilitated by the increased connectivity of regions important in the processing of emotional and social information (e.g., the amygdala, ventral striatum, orbitofrontal cortex, medial prefrontal cortex, and superior temporal sulcus) and regions important in cognitive control processes (e.g., the dorsolateral prefrontal cortex, anterior and posterior cingulate, and temporo-parietal cortices). Consistent with this, we found increases in self-reported impulse control through the mid-20s (Steinberg, Albert et al., submitted for publication).

Functional changes in the cognitive control system

Functional studies of brain development in adolescence are largely consistent with the findings from structural studies and from studies of cognitive and psychosocial development. Several overarching conclusions can be drawn from this research. First, studies point to a gradual development of cognitive control mechanisms over the course of adolescence and early adulthood, consistent with the anatomical changes in the dorsolateral prefrontal cortex described earlier. Imaging studies examining performance on tasks requiring cognitive control (e.g., Stroop, flanker tasks, Go-No/Go, antisaccade) have shown that adolescents tend to recruit the network less efficiently than do adults, and that regions whose activity correlates with task performance (i.e., cognitive control areas) become more focally activated with age (Durston et al., 2006). It has been suggested that this increasingly focal engagement of cognitive control areas reflects a strengthening of connections within the control network, and of its projections to other regions (a claim consistent with data on increased connectivity among cortical areas with development; Liston et al., 2006).

Improved performance on cognitive control tasks between childhood and adulthood is accompanied by two different functional changes: Between childhood and adolescence, there appears to be an increase in activation of the dorsolateral prefrontal cortex (Adleman et al., 2002; Casey, Giedd, & Thomas, 2000; Durston et al., 2002; Luna et al., 2001; Tamm, Menon, & Reiss, 2002), consistent with the synaptic pruning and myelination of this region at this time. The period between adolescence and adulthood, in contrast, appears to be one of fine-tuning (rather than one characterized by an overall increase or decrease in activation; Brown et al., 2005), presumably facilitated by the more extensive connectivity within and across brain areas (Crone et al., 2006; Luna et al., 2001). For example, imaging studies using tasks in which individuals are asked to inhibit a "prepotent" response, like trying to look away from, rather than toward, a point of light (an antisaccade task), have shown that adolescents tend to recruit the cognitive control network less selectively and efficiently than do adults, perhaps overtaxing the capacity of the regions they activate (Luna et al., 2001). In essence, whereas the advantage that adolescents have over children in cognitive control inheres in the maturation of brain regions implicated in executive function (mainly, dorsolateral prefrontal cortex), the reasons the cognitive control system of adults is more effective than that of adolescents may be because adults' brains evince more differentiated activation in response to different task demands. This would be consistent with the notion that performance on relatively basic tests of exec-

utive processing reaches adult levels around age 16, whereas performance of especially challenging tasks, which may require more efficient activation, continues to improve in late adolescence.

While the cognitive control network is clearly implicated in reasoning and decision-making, several recent findings suggest that decision-making is often governed by a competition between this network and the socio-emotional network (Drevets & Raichle, 1998). This competitive interaction has been implicated in a wide range of decision-making contexts, including drug use (Bechara, 2005; Chambers et al., 2003), social decision processing (Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003), moral judgments (Greene, Nystrom, Engell, Darley, & Cohen, 2004), and the valuation of alternative rewards and costs (Ernst et al., 2004; McClure, Laibson, Loewenstein, & Cohen, 2004), as well as in an account of adolescent risk-taking (Chambers et al., 2003). In each instance, impulsive or risky choices are presumed to arise when the socio-emotional network dominates the cognitive control network. More specifically, risk-taking is more likely when the socio-emotional network is relatively more activated or when processes mediated by the cognitive control network are disrupted. For example, McClure et al. (2004) have shown that decisions reflecting a preference for smaller immediate rewards over larger delayed rewards are associated with relatively increased activation of the ventral striatum, orbitofrontal cortex, and medial prefrontal cortex, all regions linked to the socio-emotional network, whereas regions implicated in cognitive control (dorsolateral prefrontal cortex, parietal areas) are engaged equivalently across decision conditions. Similarly, two recent studies (Ernst et al., 2004; Matthews, Simmons, Lane, & Paulus, 2004) show that increased activity in regions of the socio-emotional network (ventral striatum, medial prefrontal cortex) predicts the selection of comparatively risky (but potentially highly rewarding) choices over more conservative choices. Finally, one recent experimental study found that transient disruption of right dorsolateral prefrontal cortical function via transcranial magnetic stimulation (i.e., disruption of a region known to be crucial to cognitive control) increased risk-taking in a gambling task (Knoch et al., 2006).

Coordination of cortical and subcortical functioning

A second, but less well documented, change in brain function during adolescence involves the increasing involvement of multiple brain regions in tasks involving the processing of emotional information (e.g., facial expressions, emotionally arousing stimuli). Although it has been widely reported that adolescents show significantly greater limbic activity than adults when exposed to emotional stimuli (which is popularly interpreted as evidence for adolescents' "emotionality"), this is not consistently the case. In some such studies adolescents do show a tendency toward relatively more limbic activation than adults (e.g., Baird et al., 1999; Killgore & Yurgelun-Todd, 2007), but in others, adolescents show relatively more prefrontal activation (e.g., Baird, Fugelsang, & Bennett, 2005; Nelson et al., 2003). Much depends on the stimuli used, whether the stimuli are presented explicitly or subliminally, and the specific instructions given to the participant (e.g., whether the participant is asked to pay attention to the emotion or to pay attention to some other aspect of the stimulus material). A more cautious reading of this literature is not that adolescents are unequivocally more prone than adults to activation of subcortical brain systems when presented with emotional stimuli (or that they are more "emotional"), but that they may be less likely to activate multiple cortical and subcortical

areas simultaneously, suggesting deficits, relative to adults, in the synchronization of cognition and affect.

This lack of cross-talk across brain regions results not only in individuals acting on gut feelings without fully thinking (the stereotypic portrayal of adolescent risk-taking), but also in thinking too much when one's gut feelings ought to be attended to (which teenagers also do from time to time) (see also Reyna & Farley, 2006, for a discussion of adolescents' deficiencies in intuitive, or "gist-based," decision-making). Few readers would be surprised to hear of studies showing more impulsivity and less deliberative thinking among adolescents than adults. But in one recent study (Baird et al., 2005), when asked whether some obviously dangerous activities (e.g., setting one's hair on fire, swimming with sharks) were "good ideas," adolescents took significantly longer (i.e., deliberated more) than adults to respond to the questions and activated a less narrowly distributed set of cognitive control regions, particularly in the dorsolateral prefrontal cortex—a result reminiscent of Luna's study of age differences in response inhibition (Luna et al., 2001). This was not the case when the queried activities were not dangerous ones, however (e.g., eating salad, taking a walk), where adolescents and adults performed similarly and showed similar patterns of brain activation. Thus, it is the lack of coordination of affect and thinking, rather than the dominance of affect over thinking, that may characterize adolescence. This results in two patterns of risk-taking that are behaviorally quite different (impulsively acting before thinking, and overthinking rather than acting impulsively) but that actually may have a similar neurobiological origin.

The temporal gap between the development of basic information-processing abilities, which is facilitated by maturation of the prefrontal cortex and largely complete by age 16, and the development of abilities that require the coordination of affect and cognition, which is facilitated by improved connections among cortical regions and between cortical and subcortical regions, and which is a later development, is illustrated in Fig. 1. The figure is based on data from our study of 10- to 30-year-olds mentioned earlier (Steinberg, Cauffman et al. submitted for publication). The two capacities graphed are basic intellectual ability, which is a composite score that combines performance on tests of working memory (Thompson-Schill, 2002), digit-span, and verbal fluency; and psychosocial maturity, which composites scores of the self-report measures of impulsivity, risk perception,

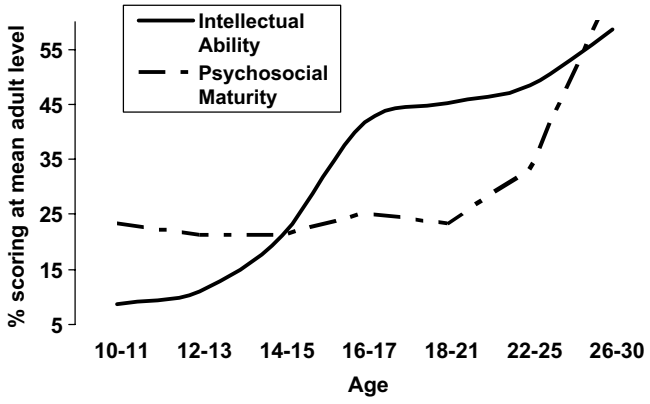

Fig. 1. Proportion of individuals in each age group scoring at or above the mean for 26- to 30- year-olds on indices of intellectual and psychosocial maturity. From Steinberg, Cauffman et al. submitted for publication.

sensation-seeking, future orientation, and resistance to peer influence mentioned earlier. Mature functioning with respect to these psychosocial capacities requires the effective coordination of emotion and cognition. The figure shows the proportion of individuals in each age group who score at or above the mean level of the 26- to 30-year-olds in our sample on the psychosocial and intellectual composites. As the figure indicates, and consistent with other studies, basic intellectual abilities reach adult levels around age 16, long before the process of psychosocial maturation is complete—well into the young adult years.

Changes in brain connectivity and the development of resistance to peer influence

The improved connectivity between cortical and subcortical areas also has implications for understanding changes in susceptibility to peer influence, which, as I noted, is an important contributor to risk behavior during adolescence. Resistance to peer influence, I believe, is achieved by cognitive control of the impulsive reward-seeking behavior that is stimulated by the presence of peers through activation of the socio-emotional network. To the extent that improved coordination between the cognitive control and socio-emotional networks facilitates this regulatory process, we should see gains in resistance to peer influence over the course of adolescence that continue at least into late adolescence (when maturation of inter-region connections are still ongoing). This is precisely what we have found in our own work, in which we show that gains in self-reported resistance to peer influence continue at least until 18 (Steinberg & Monahan, 2007), and that the actual impact of the presence of peers on risky behavior is still evident among college undergraduates averaging 20 years in age (Gardner & Steinberg, 2005).

Two recent studies of the relation between resistance to peer influence and brain structure and function provide further support for this argument. In an fMRI study of 43 10-year-olds who were exposed to emotionally-arousing video clips containing social information (clips of angry hand movements or angry facial expressions), we found that individuals with relatively lower scores on our self-report measure of resistance to peer influence showed significantly greater activation of regions implicated in the perception of others' actions (i.e., right dorsal premotor cortex), whereas those with relatively higher scores showed greater functional connectivity between these action-processing regions and regions implicated in decision-making (i.e., dorsolateral prefrontal cortex); such differences were not observed when individuals were presented with emotionally-neutral clips (Grosbras et al., 2007). These results suggest that individuals who are especially susceptible to peer influence may be unusually aroused by signs of anger in others but less able to exert inhibitory control over their responses to such stimuli. In a second study, of differences in brain morphology between individuals (aged 12–18) scoring high versus low in resistance to peer influence, we found morphological evidence that, after controlling for age, adolescents high in resistance to peer influence showed evidence of greater structural connectivity between premotor and prefrontal regions, a pattern consistent with the more frequent concurrent engagement of these networks among individuals more able to resist peer pressure (Paus et al., in press). Also consistent with this is work showing that recruitment of cognitive control resources (which would counter impulsive susceptibility to peer pressure) is greater among individuals with stronger connections between frontal and striatal regions (Liston et al., 2006).

Summary: improvements in cognitive control over adolescence and young adulthood

In sum, risk taking declines between adolescence and adulthood for two, and perhaps, three reasons. First, the maturation of the cognitive control system, as evidenced by structural and functional changes in the prefrontal cortex, strengthens individuals' abilities to engage in longer-term planning and inhibit impulsive behavior. Second, the maturation of connections across cortical areas and between cortical and subcortical regions facilitates the coordination of cognition and affect, which permits individuals to better modulate socially and emotionally aroused inclinations with deliberative reasoning and, conversely, to modulate excessively deliberative decision-making with social and emotional information. Finally, there may be developmental changes in patterns of neurotransmission after adolescence that change reward salience and reward-seeking, but this is a topic that requires further behavioral and neurobiological research before saying anything definitive.

Implications for prevention and intervention

In many respects, then, risk-taking during adolescence can be understood and explained as the product of an interaction between the socio-emotional and cognitive control networks (Drevets & Raichle, 1998), and adolescence is a period in which the former abruptly becomes more assertive at puberty while the latter gains strength only gradually, over a longer period of time. It is important to note, however, that the socio-emotional network is not in a state of constantly high activation, even during early and middle adolescence. Indeed, when the socio-emotional network is not highly activated (for example, when individuals are not emotionally excited or are alone), the cognitive control network is strong enough to impose regulatory control over impulsive and risky behavior, even in early adolescence; recall that in our video driving game study, when individuals were alone we found no age differences in risk-taking between adolescents who averaged 14 and adults who averaged 34 (Gardner & Steinberg, 2005). In the presence of peers or under conditions of emotional arousal, however, the socio-emotional network becomes sufficiently activated to diminish the regulatory effectiveness of the cognitive control network. (We are currently beginning research in our lab to examine whether positive or negative emotional arousal has differential effects on risk-taking during adolescence and adulthood.) During adolescence, the cognitive control network matures, so that by adulthood, even under conditions of heightened arousal in the socio-emotional network inclinations toward risk-taking can be modulated.

What does this formulation mean for the prevention of unhealthy risk-taking in adolescence? Given extant research suggesting that it is not the way that adolescents think or what they don't know or understand that is the problem, rather than attempting to change how adolescents view risky activities a more profitable strategy might focus on limiting opportunities for immature judgment to have harmful consequences. As I noted in the introduction to this article, more than 90% of all American high school students have had sex, drug, and driver education in their schools, yet large proportions of them still have unsafe sex, binge drink, smoke cigarettes, and drive recklessly (some all at the same time; Steinberg, 2004). Strategies such as raising the price of cigarettes, more vigilantly enforcing laws governing the sale of alcohol, expanding adolescents' access to mental health and contraceptive services, and raising the driving age would likely be more effective in limiting adolescent smoking, substance abuse, pregnancy, and automobile fatalities

than attempts to make adolescents wiser, less impulsive, or less shortsighted. Some things just take time to develop, and mature judgment is probably one of them.

The research reviewed here suggests that heightened risk-taking during adolescence is likely to be normative, biologically driven, and, to some extent, inevitable. There is probably very little we can or ought to do to either attenuate or delay the shift in reward sensitivity that takes place at puberty, a developmental shift that likely has evolutionary origins. It may be possible to accelerate the maturation of self-regulatory competence, but no research has examined whether this can be done. We do know that individuals of the same age vary in their impulse control, planfulness, and susceptibility to peer influence, and that variations in these characteristics are related to variations in risky and antisocial behavior (Steinberg, 2008). Although there is a wealth of studies showing familial influences on psychosocial maturity in adolescence, indicating that adolescents who are raised in homes characterized by authoritative parenting (i.e., parenting that is warm but firm) are more mature and less likely to engage in risky or antisocial behavior (Steinberg, 2001), we do not know whether this link is mediated by changes in the underlying bases of self-regulation, or whether they mainly reflect the imposition of external constraints (through parental monitoring) on adolescents' access to harmful situations and substances. Nonetheless, there is reason to study whether altering the context in which adolescents develop may have beneficial effects on the development of self-regulatory capacities. Understanding how contextual factors, both inside and outside the family, influence the development of self-regulation, and the neural underpinnings of these processes, should be a high priority for those interested in the physical and psychological well being of young people.

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References

Adleman, N., Menon, V., Blasey, C., White, C., Warsofsky, I., Glover, G., et al. (2002). A developmental fMRI study of the Stroop Color-Word task. *Neuroimage, 16*, 61–75.

Adolphs, R. (2003). Cognitive neuroscience of human social behavior. *Nature Reviews Neuroscience, 4*, 165–178.

Aharon, I., Etcoff, N., Ariely, D., Chabris, C., O'Connor, E., & Breiter, H. (2001). Beautiful faces have variable reward value: fMRI and behavioral evidence. *Neuron, 8*, 537–551.

Andersen, S., Thompson, A., Krenzel, E., & Teicher, M. (2002). Pubertal changes in gonadal hormones do not underlie adolescent dopamine receptor overproduction. *Psychoneuroendocrinology, 27*, 683–691.

Babalola, S. (2004). Perceived peer behavior and the timing of sexual debut in Rwanda: A survival analysis of youth data. *Journal of Youth and Adolescence, 33*, 353–363.

Baird, A., Fugelsang, J., & Bennett, C. (2005, April). "*What were you thinking*"*?: An fMRI study of adolescent decision making.* Poster presented at the 12th Annual Cognitive Neuroscience Society (CNS) Meeting, New York.

Baird, A., Gruber, S., Fein, D., Maas, L., Steingard, R., Renshaw, P., et al. (1999). Functional magnetic resonance imaging of facial affect recognition in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 195–199.

Baron-Cohen, S., Tager-Flusberg, T., & Cohen, D. (Eds.). (1999). *Understanding other minds: Perspectives from developmental cognitive neuroscience*. New York: Oxford University Press.

Bearman, P., Jones, J., & Udry, J. R. (1997). *The national longitudinal study of adolescent health: Research design*. Chapel Hill, NC: Carolina Population Center.

Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: a neurocognitive perspective. *Nature Neuroscience, 8*, 1458–1463.

Bechara, A., Damasio, A., Damasio, H., & Anderson, S. (1994). Insensitivity to future consequences following damage to human prefrontal cortex. *Cognition, 50*, 7–15.

Benthin, A., Slovic, P., & Severson, H. (1993). A psychometric study of adolescent risk perception. *Journal of Adolescence, 16*, 153–168.

Berg, W., & Byrd, D. (2002). The Tower of London spatial problem solving task: Enhancing clinical and research implementation. *Journal of Experimental and Clinical Neuropsychology, 25*, 586–604.

Berridge, K. C. (2003). Comparing the emotional brain of humans and other animals. In R. J. Davidson, H. H. Goldsmith, & K. Scherer (Eds.), *Handbook of affective sciences* (pp. 25–51). Oxford: Oxford University Press.

Beyth-Marom, R., Austin, L., Fischoff, B., Palmgren, C., & Jacobs-Quadrel, M. (1993). Perceived consequences of risky behaviors: Adults and adolescents. *Developmental Psychology, 29*, 549–563.

Bjork, J., Knutson, B., Fong, G., Caggiano, D., Bennett, S., & Hommer, D. (2004). Incentive-elicited brain activation in adolescents: Similarities and differences from young adults. *Journal of Neuroscience, 24*, 1793–1802.

Blum, R., & Nelson-Mmari, K. (2004). The health of young people in a global context. *Journal of Adolescent Health, 35*, 402–418.

Brooks-Gunn, J., & Furstenberg, F. Jr., (1989). Adolescent sexual behavior. *American Psychologist, 44*, 249–257.

Brown, B. (2004). Adolescents' relationships with peers. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 363–394). New York: Wiley.

Brown, T., Lugar, H., Coalson, R., Miezin, F., Petersen, S., & Schlaggar, B. (2005). Developmental changes in human cerebral functional organization for word generation. *Cerebral Cortex, 15*, 275–290.

Buchanan, C., Eccles, J., & Becker, J. (1992). Are adolescents the victims of raging hormones?: Evidence for activational effects of hormones on moods and behavior at adolescence. *Psychological Bulletin, 111*, 62–107.

Byrnes, J., Miller, D., & Schafer, W. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin, 125*, 367–383.

Cameron, J. (2004). Interrelationships between hormones, behavior, and affect during adolescence: understanding hormonal, physical, and brain changes occurring in association with pubertal activation of the reproductive axis. *Annals of the New York Academy of Sciences, 1021*, 110–123.

Casey, B. J., Giedd, J., & Thomas, K. (2000). Structural and functional brain development and its relation to cognitive development. *Biological Psychology, 54*, 241–257.

Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: What have we learned about cognitive development?. *Trends in Cognitive Science 9*, 104–110.

Casey, B. J., Getz, S., & Galvan, A. (2008). The adolescent brain. *Developmental Review, 28*, 62–77.

Cauffman, E., Claus, E., Shulman, E., Banich, M., Graham, S., Woolard, J., et al. *Adolescent decision-making: Risk preference or punishment insensitivity?* Manuscript submitted for publication.

Centers for Disease Control and Prevention (2006). Youth risk behavior surveillance—United States, 2005. *Morbidity & Mortality Weekly Report, 55*(SS-5), 1–108.

Chambers, R., Taylor, J., & Potenza, M. (2003). Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry, 160*, 1041–1052.

Chassin, L., Hussong, A., Barrera, M., Jr., Molina, B., Trim, R., & Ritter, J. (2004). Adolescent substance use. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 665–696). New York: Wiley.

Chibbar, R., Toma, J., Mitchell, B., & Miller, F. (1990). Regulation of neural oxytocin gene expression by gonadal steroids in pubertal rats. *Molecular Endocrinology, 4*, 2030–2038.

Cicchetti, D., & Dawson, G. (2002). Editorial: Multiple levels of analysis. *Development and Psychopathology, 14*, 417–420.

Collins, W. A., & Steinberg, L. (2006). Adolescent development in interpersonal context. In W. Damon & R. Lerner (Eds.) & N. Eisenberg (Vol. Ed.), *Social, emotional, and personality development. Handbook of child psychology* (pp. 1003–1067). New York: Wiley.

Conklin, H., Luciana, M., Hooper, C., & Yarger, R. (2007). Working memory performance in typically developing children and adolescents: Behavioral evidence of protracted frontal lobe development. *Developmental Neuropsychology, 31*, 103–128.

Crone, E., Donohue, S., Honomichl, R., Wendelken, C., & Bunge, S. (2006). Brain regions mediating flexible rule use during development. *Journal of Neuroscience, 26*, 11239–11247.

Crone, E., & van der Molen, M. (2004). Developmental changes in real life decision making: Performance on a gambling task previously shown to depend on the ventromedial prefrontal cortex. *Developmental Neuropsychology, 25*, 251–279.

Dahl, R. (2004). Adolescent brain development: A period of vulnerabilities and opportunities. *Annals of the New York Academy of Sciences, 1021*, 1–22.

Deardorff, J., Bonzales, N. A., Christopher, F. S., Roosa, M. W., & Millsap, R. E. (2005). Early puberty and adolescent pregnancy: The influence of alcohol use. *Pediatrics, 116*, 1451–1456.

Diamond, J. (1992). *The third chimpanzee: The evolution and future of the human animal*. New York: HarperCollins.

DiBlasio, F., & Benda, B. (1992). Gender differences in theories of adolescent sexual activity. *Sex Roles, 27*, 221–240.

DiIorio, C., Dudley, W., Kelly, M., Soet, J., Mbwara, J., & Sharpe Potter, J. (2001). Social cognitive correlates of sexual experience and condom use among 13- through 15-year-old adolescents. *Journal of Adolescent Health, 29*, 208–216.

Drevets, W., & Raichle, M. (1998). Reciprocal suppression of regional cerebral blood flow during emotional versus higher cognitive processes: Implications for interactions between emotion and cognition. *Cognition and Emotion, 12*, 353–385.

Dumont, N., Andersen, S., Thompson, A., & Teicher, M. (2004). Transient dopamine synthesis modulation in prefrontal cortex: In vitro studies. *Developmental Brain Research, 150*, 163–166.

Durston, S., Davidson, M., Tottenham, N., Galvan, A., Spicer, J., Fossella, J., et al. (2006). A shift from diffuse to focal cortical activity with development. *Developmental Science, 9*, 1–20.

Durston, S., Thomas, K., Yang, Y., Ulug, A., Zimmerman, R., & Casey, B. J. (2002). A neural basis for development of inhibitory control. *Developmental Science, 5*, 9–16.

East, P., Felice, M., & Morgan, M. (1993). Sisters' and girlfriends' sexual and childbearing behavior: Effects on early adolescent girls' sexual outcomes. *Journal of Marriage and the Family, 55*, 953–963.

Elkind, D. (1967). Egocentrism in adolescence. *Child Development, 38*, 1025–1034.

Eluvathingal, T., Hasan, K., Kramer, L., Fletcher, J., & Ewing-Cobbs, L. (2007). Quantitative diffusion tensor tractography of association and projection fibers in normally developing children and adolescents. *Cerebral Cortex*. Advance Access published on February 16, 2007.

Ennett, S., Tobler, N., Ringwalt, C., & Flewelling, R. (1994). How effective is drug abuse resistance education? A meta-analysis of Project DARE outcome evaluations. *American Journal of Public Health, 84*, 1394–1401.

Ernst, M., Nelson, E., Jazbec, S., McClure, E., Monk, C., Blair, R., et al. (2005). Amygdala and nucleus accumbens activation in response to receipt and omission of gains in adults and adolescents. *Neuroimage, 25*, 1279–1291.

Ernst, M., Nelson, E., McClure, E., Monk, C., Munson, S., Eshel, N., et al. (2004). Choice selection and reward anticipation: An fMRI study. *Neuropsychologia, 42*, 1585–1597.

Ernst, M., & Spear, L. (in press). Reward systems. In M. de Haan & M. Gunnar (Eds.), *Handbook of developmental social neuroscience. Section D: Regulatory systems: Motivation and emotion*. New York: Guilford Press.

Gallagher, S. (2000). Philosophical conceptions of the self: Implications for cognitive science. *Trends in Cognitive Sciences, 4*, 14–21.

Galvan, A., Hare, T., Davidson, M., Spicer, J., Glover, G., & Casey, B. J. (2005). The role of ventral frontostriatal circuitry in reward-based learning in humans. *Journal of Neuroscience, 25*, 8650–8656.

Galvan, A., Hare, T., Parra, C., Penn, J., Voss, H., Glover, G., et al. (2006). Earlier development of the accumbens relative to orbitofrontal cortex might underlie risk-taking behavior in adolescents. *Journal of Neuroscience, 26*, 6885–6892.

Galvan, A., Hare, T., Voss, H., Glover, G., & Casey, B. J. (2007). Risk-taking and the adolescent brain: Who is at risk? *Developmental Science, 10*, F8–F14.

Gardner, E. L. (1999). The neurobiology and genetics of addiction: Implications of the reward deficiency syndrome for therapeutic strategies in chemical dependency. In J. Elster (Ed.), *Addiction: Entries and exits* (pp. 57–119). New York: Russell Sage Foundation.

Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology, 41*, 625–635.

Green, L., Myerson, J., & Ostaszewski, P. (1999). Discounting of delayed rewards across the life span: Age differences in individual discounting functions. *Behavioural Processes, 46*, 89–96.

Greene, J., Nystrom, L., Engell, A., Darley, J., & Cohen, J. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron, 44*, 389–400.

Grosbras, M., Jansen, M., Leonard, G., McIntosh, A., Osswald, K., Poulsen, C., et al. (2007). Neural mechanisms of resistance to peer influence in early adolescence. *Journal of Neuroscience, 27*, 8040–8045.

Hall, G. S. (1904). *Adolescence*. New York: Appleton.

Harris, C., Jenkins, M., & Glaser, D. (2006). Gender differences in risk assessment: Why do women take fewer risks than men? *Judgment and Decision Making, 1*, 48–63.

Heberlein, A., Adolphs, R., Tranel, D., & Damasio, H. (2004). Cortical regions for judgments of emotions and personality traits from point-light walkers. *Journal of Cognitive Neuroscience, 16*, 1143–1158.

Hein, K. (1988). *Issues in adolescent health: An overview*. Washington, DC: Carnegie Council on Adolescent Development.

Hoffman, E., & Haxby, J. (2000). Distinct representations of eye gaze and identity in the distributed human neural system for face perception. *Nature Neuroscience, 3*, 80–84.

Hooper, C., Luciana, M., Conklin, H., & Yarger, R. (2004). Adolescents' performance on the Iowa Gambling Task: Implications for the development of decision making and ventromedial prefrontal cortex. *Developmental Psychology, 40*, 1148–1158.

Ikemoto, S., & Wise, R. (2004). Mapping of chemical trigger zones for reward. *Neuropharmacology, 47*(Supplement 1), 190–201.

Insel, T., & Fernald, R. (2004). How the brain processes social information: Searching for the social brain. *Annual Review of Neuroscience, 27*, 697–722.

Insel, T., Young, L., Witt, D., & Crews, D. (1993). Gonadal steroids have paradoxical effects on brain oxytocin receptors. *Journal of Neuroendocrinology, 5*, 619–628.

Johnson, R., & Gerstein, D. (1998). Initiation of use of alcohol, cigarettes, marijuana, cocaine, and other substances in US birth cohorts since 1919. *American Journal of Public Health, 88*, 27–33.

Kagan, J., Snidman, N., Kahn, V., & Towsley, S. (2007). The preservation of two infant temperaments into adolescence. *SRCD Monographs, 72*(2).

Kail, R. (1991). Developmental change in speed of processing during childhood and adolescence. *Psychological Bulletin, 109*, 490–501.

Kail, R. (1997). Processing time, imagery, and spatial memory. *Journal of Experimental Child Psychology, 64*, 67–78.

Keating, D. (2004). Cognitive and brain development. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 45–84). New York: Wiley.

Killgore, W., & Yurgelun-Todd, D. (2007). Unconscious processing of facial affect in children and adolescents. *Social Neuroscience, 2*, 28–47.

Knoch, D., Gianotti, L., Pascual-Leone, A., Treyer, V., Regard, M., Hohmann, M., et al. (2006). Disruption of right prefrontal cortex by low-frequency repetitive transcranial magnetic stimulation induces risk-taking behavior. *Journal of Neuroscience, 26*, 6469–6472.

Knutson, B., Westdorp, A., Kaiser, E., & Hommer, D. (2000). FMRI visualization of brain activity during a monetary incentive delay task. *NeuroImage, 12*, 20–27.

Lenroot, R., Gogtay, N., Greenstein, D., Wells, E., Wallace, G., Clasen, L., et al. (2007). Sexual dimorphism of brain developmental trajectories during childhood and adolescence. *Neuroimage*. Available on line April 6, 2007.

Lerner, R., & Steinberg, L. (2004). The scientific study of adolescence: Past, present, and future. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 1–12). New York: Wiley.

Liston, C., Watts, R., Tottenham, N., Davidson, M., Niogi, S., Ulug, A., et al. (2006). Frontostriatal microstructure modulates efficient recruitment of cognitive control. *Cerebral Cortex, 16*, 553–560.

Luna, B., Thulborn, K., Munoz, D., Merriam, E., Garver, K., Minshew, N., et al. (2001). Maturation of widely distributed brain function subserves cognitive development. *Neuroimage, 13*, 786–793.

Martin, C., Kelly, T., Rayens, M., Brogli, B., Brenzel, A., Smith, W., et al. (2002). Sensation seeking, puberty and nicotine, alcohol and marijuana use in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 1495–1502.

Matthews, S., Simmons, A., Lane, S., & Paulus, M. (2004). Selective activation of the nucleus accumbens during risk-taking decision-making. *NeuroReport, 15*, 2123–2127.

May, J., Delgado, M., Dahl, R., Fiez, J., Stenger, V., Ryan, N., et al. (2004). Event-related fMRI of reward related brain activity in children and adolescents. *Biological Psychiatry, 55*, 359–366.

McClure, S., Laibson, D., Loewenstein, G., & Cohen, J. (2004). Separate neural systems value immediate and delayed monetary rewards. *Science, 306*, 503–507.

Miller, F. D., Ozimek, G., Milner, R., & Bloom, F. (1989). Regulation of neuronal oxytocin mRNA by ovarian steroids in the mature and developing hypothalamus. *Proceedings of the National Academy of Sciences of the United States of America, 86*, 2468–2472.

Millstein, S., & Halpern-Felsher, B. (2002). Perceptions of risk and vulnerability. *Journal of Adolescent Health, 31S*, 10–27.

Morse, S. (2006). Brain overclaim and criminal responsibility: A diagnostic note. *Ohio State Journal of Criminal Law, 3*, 397–412.

National Research Council (2007). *Preventing teen motor crashes: Contributions from the behavioral and social sciences*. Washington: National Academy Press.

Nelson, E., Leibenluft, E., McClure, E., & Pine, D. (2005). The social re-orientation of adolescence: A neuroscience perspective on the process and its relation to psychopathology. *Psychological Medicine, 35*, 163–174.

Nelson, E., McClure, E., Monk, C., Zarahn, E., Leibenluft, E., Pine, D., et al. (2003). Developmental differences in neuronal engagement during implicit encoding of emotional faces: An event-related fMRI study. *Journal of Child Psychology, Psychiatry and Allied Disciplines, 44*, 1015–1024.

Nelson, E., McClure, E., Parrish, J., Leibenluft, E., Ernst, M., Fox, N., et al. (2007). *Brain systems underlying peer social acceptance in adolescents*. Unpublished manuscript, Mood and Anxiety Disorders Program, National Institute of Mental Health, Washington.

Ochsner, K., Bunge, S., Gross, J., & Gabrieli, J. (2002). Rethinking feelings: An fMRI study of the cognitive regulation of emotion. *Journal of Cognitive Neuroscience, 14*, 1215–1229.

Overton, W. (1990). Competence and procedures: Constraints on the development of logical reasoning. In W. Overton (Ed.), *Reasoning, necessity, and logic: Developmental perspectives* (pp. 1–32). Hillsdale, NJ: Erlbaum.

Patton, J., Stanford, M., & Barratt, E. (1995). Factor structure of the Barratt Impulsiveness Scale. *Journal of Clinical Psychology, 51*, 768–774.

Paus, T. (2005). Mapping brain maturation and cognitive development during adolescence. *Trends in Cognitive Sciences, 9*, 60–68.

Paus, T., Toro, R., Leonard, G., Lerner, J., Lerner, R., Perron, M., et al. (in press). Morphological properties of the action—observation cortical network in adolescents with low and high resistance to peer influence. *Social Neuroscience*.

Pellegrini, A. D., & Long, J. D. (2003). A sexual selection theory longitudinal analysis of sexual segregation and integration in early adolescence. *Journal of Experimental Child Psychology, 85*, 257–278.

Phelps, E., O'Connor, K., Cunningham, W., Funayma, E., Gatenby, J., Gore, J., et al. (2000). Performance on indirect measures of race evaluation predicts amygdala activity. *Journal of Cognitive Neuroscience, 12*, 1–10.

Prinstein, M., Meade, C., & Cohen, G. (2003). Adolescent oral sex, peer popularity, and perceptions of best friends' sexual behavior. *Journal of Pediatric Psychology, 28*, 243–249.

Ranking, J., Lane, D., Gibbons, F., & Gerrard, M. (2004). Adolescent self-consciousness: Longitudinal age changes and gender differences in two cohorts. *Journal of Research on Adolescence, 14*, 1–21.

Reyna, V. F., & Farley, F. (2006). Risk and rationality in adolescent decision-making: Implications for theory, practice, and public policy. *Psychological Science in the Public Interest, 7*, 1–44.

Rilling, J., Gutman, D., Zeh, T., Pagnoni, G., Berns, G., & Kilts, C. D. (2002). A neural basis for social cooperation. *Neuron, 35*, 395–405.

Rivers, S., Reyna, V., & Mills, B. (2008). Risk taking under the influence: A fuzzy-trace theory of emotion in adolescence. *Developmental Review, 28*, 107–144.

Rosenberg, D., & Lewis, D. (1995). Postnatal maturation of the dopaminergic innervation of monkey prefrontal and motor cortices: A tyrosine hydroxylase immunohistochemical analysis. *Journal of Comparative Neurology, 358*, 383–400.

Sanfey, A., Rilling, J., Aronson, J., Nystrom, L., & Cohen, J. (2003). The neural basis of economic decision-making in the ultimatum game. *Science, 300*, 1755–1758.

Schulz, K., & Sisk, C. (2006). Pubertal hormones, the adolescent brain, and the maturation of social behaviors: Lessons from the Syrian hamster. *Molecular and Cellular Endocrinology, 254–255*, 120–126.

Simons-Morton, B., Lerner, N., & Singer, J. (2005). The observed effects of teenage passengers on the risky driving behavior of teenage drivers. *Accident Analysis and Prevention, 37*, 973–982.

Sisk, C., & Foster, D. (2004). The neural basis of puberty and adolescence. *Nature Neuroscience, 7*, 1040–1047.

Sisk, C., & Zehr, J. (2005). Pubertal hormones organize the adolescent brain and behavior. *Frontiers in Neuroendocrinology, 26*, 163–174.

Smith, E., Udry, J., & Morris, N. (1985). Pubertal development and friends: A biosocial explanation of adolescent sexual behavior. *Journal of Health and Social Behavior, 26*, 183–192.

Spear, L. (2002). The adolescent brain and the college drinker: Biological basis of the propensity to use and misuse alcohol. *Journal of Studies on Alcohol*(Suppl. 14), 71–81.

Spear, P. (2000). The adolescent brain and age-related behavioral manifestations. *Neuroscience and Biobehavioral Reviews, 24*, 417–463.

Steinberg, L. (2001). We know some things: Adolescent-parent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1–20.

Steinberg, L. (2004). Risk-taking in adolescence: What changes, and why? *Annals of the New York Academy of Sciences, 1021*, 51–58.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*, 69–74.

Steinberg, L. (2007). Risk-taking in adolescence: New perspectives from brain and behavioral science. *Current Directions in Psychological Science, 16*, 55–59.

Steinberg, L. (2008). *Adolescence* (8th ed.). New York: McGraw-Hill.

Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. *Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model*. Manuscript submitted for publication.

Steinberg, L., & Belsky, J. (1996). A sociobiological perspective on psychopathology in adolescence. In D. Cicchetti & S. Toth (Eds.). *Rochester Symposium on Developmental Psychopathology* (Vol. 7, pp. 93–124). Rochester, NY: University of Rochester Press.

Steinberg, L., & Cauffman, E. (1996). Maturity of judgment in adolescence: Psychosocial factors in adolescent decision making. *Law and Human Behavior, 20*, 249–272.

Steinberg, L., Cauffman, E., Woolard, J., Graham, S., & Banich, M. *Are adolescents less mature than adults? Minors' access to abortion, the juvenile death penalty, and the alleged APA "flip–flop"*. Manuscript submitted for publication.

Steinberg, L., & Chein, J. (2006). Unpublished raw data.

Steinberg, L., Dahl, R., Keating, D., Kupfer, D., Masten, A., & Pine, D. (2006). Psychopathology in adolescence: Integrating affective neuroscience with the study of context. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology. Developmental neuroscience* (Vol. 2, pp. 710–741). New York: Wiley.

Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. *Age differences in future orientation as assessed through self-report and temporal discounting*. Manuscript submitted for publication.

Steinberg, L., & Monahan, K. (2007). Age differences in resistance to peer influence. *Developmental Psychology, 43*, 1531–1543.

Tamm, L., Menon, V., & Reiss, A. (2002). Maturation of brain function associated with response inhibition. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 1231–1238.

Teicher, M., Andersen, S., & Hostetter, J. Jr., (1995). Evidence for dopamine receptor pruning between adolescence and adulthood in striatum but not nucleus accumbens. *Developmental Brain Research, 89*, 167–172.

Thompson-Schill, S. (2002). Neuroimaging studies of semantic memory: Inferring "how" from "where.". *Neuropsychologia, 41*, 280–292.

Trenholm, C., Devaney, B., Fortson, K., Quay, L., Wheeler, J., & Clark, M. (2007). *Impacts of four title V, section 510 abstinence education programs*. Princeton, NJ: Mathematica Policy Research.

Tribollet, E., Charpak, S., Schmidt, A., Dubois-Dauphin, M., & Dreifuss, J. (1989). Appearance and transient expression of oxytocin receptors in fetal, infant, and peripubertal rat brain studied by autoradiography and electrophysiology. *Journal of Neuroscience, 9*, 1764–1773.

Udry, J. (1987). Hormonal and social determinants of adolescent sexual initiation. In J. Bancroft (Ed.), *Adolescence and puberty* (pp. 70–87). New York: Oxford University Press.

Walker, E., Sabuwalla, Z., & Huot, R. (2004). Pubertal neuromaturation, stress sensitivity, and psychopathology. *Development and Psychopathology, 16*, 807–824.

Waraczynski, M. (2006). The central extended amygdala network as a proposed circuit underlying reward valuation. *Neuroscience and Biobehavioral Reviews, 30*, 472–496.

Williams, P., Holmbeck, G., & Greenley, R. (2002). Adolescent health psychology. *Journal of Consulting and Clinical Psychology, 70*, 828–842.

Wilson, M., & Daly, M. (1993). Lethal confrontational violence among young men. In N. Bell & R. Bell (Eds.), *Adolescent risk-taking* (pp. 84–106). Newberry Park, CA: Sage.

Winslow, J., & Insel, T. (2004). Neuroendocrine basis of social recognition. *Current Opinion in Neurobiology, 14*, 248–253.

Zimring, F. (1998). *American youth violence*. New York: Oxford University Press.

Zuckerman, M., Eysenck, S., & Eysenck, H. J. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46*, 139–149.

Adolescent Brain Development

Adolescent Anatomical Brain Differences from Adults and Children

Ayesha Chaudhary, MD, DFAPA

Objectives

- Overview of the human brain areas regulating cognition and emotion
- Broad perspective on brain development over the lifetime
- Illustrate key anatomical areas unique to the brain during adolescence
- Hypotheses of transient developmental brain changes relating to behaviors, relationships, cause-effect thinking and moral frameworks
- Explain the impact of environmental conditions on the developmental process

Goals

- Understand the areas of the brain involved in thinking & planning, emotional & relational functions, and impulsivity
- Identify the unique anatomical aspects of the human brain as it develops during adolescence
- Link the anatomical development to unique features of cognition, relationships, risk-taking behaviors/impulsivity that we experience during adolescence
- Articulate the impact of illness, deprivation, abuse, substances, and nutrition on this process

Overview

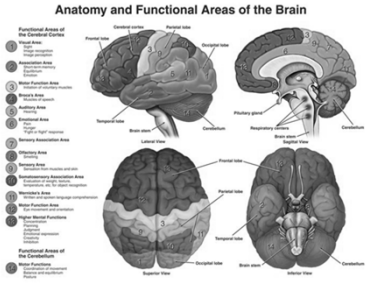
- Nervous System: what is it?
- Brain anatomy of functions
- Areas involved Emotion and Reaction
- Lifetime brain development overview
- During adolescence, brains are growing
- How this development impacts decision-making, social relationships and developing moral frameworks.
- Important aspects of psychopathology in the adolescent brain.

Nervous System

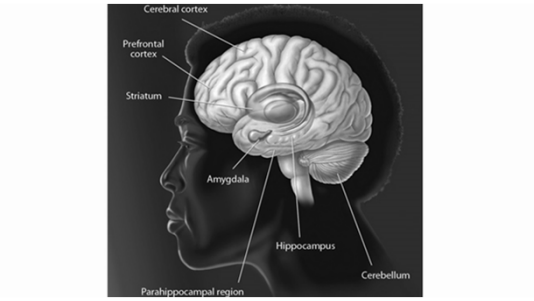
- Central nervous system:
  - Brain
  - Spinal Cord

Peripheral nervous system:
- Somatic
- Autonomic
- Enteric

Functional Neuroanatomy



Fear Response and Reaction



Key Areas of the Brain

- Cerebral cortex: perception, awareness, cognition, integration of external information and information stored in memory
- Limbic area: emotion, behavior, stress response, motivation, curbing impulsivity
- Hippocampus: memory, learning
- Pre Frontal cortex (PFC): the executive functions, risk-taking, decision-making, moderating social behavior
- Medial PreFrontal cortex (mPFC): emotional perception of others, integration of internal emotions
- Amygdala: impulsivity and reactivity

What Happens To Our Brains During Adolescence?

- Grey matter changes in the PFC
- White matter increases
- Myelination
- Pruning
- Hormonal Influences:
  - Pubertal hormones: Androgens, Estrogens
  - Stress hormones: Adrenocorticotropin and Corticosterone

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Grey Matter Changes

- The amount of grey matter in the cortex declines from childhood to adulthood
- Studies show it peaks around age 12
- Brain imaging techniques show that adolescent brains are thinning, but not comparable to adults
- Re-organization of the grey cells, cell migration

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White Matter Increases

- Relay systems expand
- Greater connections between parts of the brain
- Learning and knowledge synthesis enabled
- Motor strength, coordination optimizes
- Transmission of signals is faster due to myelination

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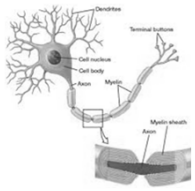
Myelination: Speed!

- Myelin sheaths are layers of cells that cover the nerve pathways
- "Insulation" to increase speed of communication
- Greater myelin formation in teenage brains



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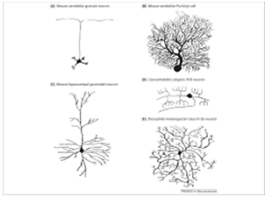
Pruning What??

- Dendritic pruning of the brain cell "wiring"
- Begins in adolescence
- Increases efficiency
- Based on greater experience and knowledge
- Reduction of distraction/interference



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Hormonal Changes

- Evidence indicates some gender based changes in rates of change
- Sex hormones associated with onset of adolescent brain development phase
- Stress hormones (ACTH and Corticosterone) impact the rate of changes and quality of the "end product"

Dad?

What Is Different?

Adult Brain

- Thinner grey matter cortex efficient access to memory, information, less "clutter"
- Developed PFC doesn't "jump the gun"
- mPFC well developed and emotionally savvy, struggle with influences from peer norms, able appreciate relationships emotions subtly

Adolescence

- Thicker grey matter
- Immature PFC does not fully develop until age 25, acts first then weighs the cause-effect equation
- mPFC immature, unable to discern others' emotional states which leads to less connection to peers and greater peer-directed behaviors

More Of That…

Adult Brain

- Less evoked reward response in dopamine pathways from peer approval
- Pubertal and corticosteriod hormones are not novel

Adolescent Brain

- Peer acceptance corresponds to greater reward salience
- Neural pathways newly under influence of developmental hormones

What Does It Matter?

- Adolescence is a transitional period where the brain is undergoing temporary reorganization per se
- Hormonal changes
- Environmental challenges exert significant influence on gene expression
- Emergence of psychopathology and substance exposure adds variables
- Adaptive/evolutionary advantages evident
- Contextual influences matter
- Open to interpretive bias

Any Evidence?

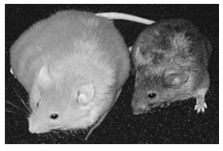
- Conflicting: Epidemiology versus NeuroImaging
- Interpretive bias associated with current data
- "Common Sense" or "Conventional Wisdom"
- Much that is unknown
- Evolutionary advantages of impulsivity, peer relationships, risk-taking

Environment?

- Stressors
- Nutrition
- Abuse
- Enrichment
- Substances
- Support
- Education

Cultural Variables Influence Gene Expression

- Genetic traits can be suppressed or activated via gene expression -by methyl donors in diet
- Early environmental influences, intrauterine and post-birth in rats: Meaney et al Mc Gill University
- Can induce longer term individual and generational changes in tumorgenic mutations. Fang, Szyf
- Fungicide exposure in rats: low sperm counts 2 gen. Skinner 2004
- Gene expression modified by dietary variables: Jirtle & Waterman 2000 Agouti Mice



Conclusions

- Brain changes during adolescence are transient
- Imaging studies suggest high concordance with known behaviors typical of adolescence
- Epidemiologic evidence is equivocal
- " Common sense being common "
- Vulnerability is added due to social, environmental, toxins/substances and psychopathological variables

DETENTION ADVOCACY

Detention Advocacy

Mitchell Feld
Council for Children's Rights
Charlotte, NC

Agenda

- Types of arguments
- Statutory criteria
- What you should do
- Alternative strategies
- How to prepare for arguments against your client
- Hypothetical practice

Good & Bad Detention Arguments

- "She has strong ties to the community and is not a flight risk."
- "He has a good detention report."
- "She helps babysit her younger siblings after school."
- "I know my client was adjudicated for larceny previously, but she is adamant that she is being falsely accused."
- "His mother loves him."

Statutory Provisions

- 7B-1901: notify the parents, < 12 hours
- 7B-1902: any DCJ or chief's designee
- 7B-1903: criteria for a SCO
- 7B-1906: timing, state bears the burden, rules of evidence do not apply, written findings of fact

Detention Checklist

- Age
- School & grades
- Any suspensions
- Who does the child live with? Familial history?
- Behavior at home? School?
- Any medications
- Medicaid vs. private insurance
- Is the insurance current?
- Strengths/weaknesses
- Other family members that live nearby
- Diagnoses
- Past evaluations, IEP/504 plan
- Conditions that child/parent would be willing to accept
- Parent's work schedule(s)
- Languages spoken
- Follow-up from past hearings
- Prior diversions, arrests
- Future goals

Alternative Strategies

- Call emergency placements
- Create a safety plan
- Regular review hearings after release
- Extra contact with DACJJ

Introducing a CCA

- What is it?
- Gives historical information about your client and family
- Identifies the child's needs and appropriate services
- Good vs. bad CCA's
- Executive summary version

Flight Risk

- Use of a monitor – police department or DACJJ
- Calling parent or DACJJ when child gets home
- DACJJ/police department to do spot checks
- Child keeps a log of activities
- Alternative placements/supervisory adults

Shackling

"At any hearing authorized or required by this Subchapter, the judge may subject a juvenile to physical restraint in the courtroom only when the judge finds the restraint to be reasonably necessary to maintain order, prevent the juvenile's escape, or provide for the safety of the courtroom. Whenever practical, the judge shall provide the juvenile and the juvenile's attorney an opportunity to be heard to contest the use of restraints before the judge orders the use of restraints. If restraints are ordered, the judge shall make findings of fact in support of the order." *N.C.G.S. 7B-2402.1*

Other Items

- Evaluate family members that come to a DRH
- Appointments set up for services
- Transport for a medication evaluation
- Medicaid "suspended" while a child is detained
- Talk to detention staff about JV's behavior

State Arguments – Get Ready!

- "He/she shouldn't be on a monitor because they have a history of running."
- "Don't send the child home because we are concerned for his/her safety and we know he/she is safe in detention."
- "At least in detention they can get schooling"

State Arguments – Get Ready!

- "If he/she violates these release conditions, I'm going to ask that he/she never gets out of detention."
- "The child is currently suspended from school."
- "The child is pending a probable cause hearing and a transfer hearing and thus has the incentive to run."

Hypothetical #1

Detention hearings begin at 1:30 p.m. today and you are notified at 9:15 a.m. that you have a new client in detention. You don't have the petition yet as it was just brought to the clerk's office. You call the detention center and ask to speak with your client. Upon asking your client what he is charged with, he tells you that they told him first degree rape and then asks you if he is going home today.

Hypothetical #2

You are appointed to represent a 14-year-old male, Eric Z., who is charged with felony larceny after allegedly stealing vintage Charlotte Hornets clothing from Buzz's Olde World Sports Memorabilia store. Eric had one prior case with DACJJ that was diverted for larceny of chicken nuggets in the school cafeteria. Eric was also in DSS custody for 11 months when he was 7 years old. Eric is currently in the Greensboro detention center and doesn't have any major rule violations on his detention report but has minor infractions for twisting his hair, talking table-to-table, and taking too long in the shower. While Eric was just detained for this felony larceny charge, he also has a pending misdemeanor assault charge that was filed a week ago, with a date of offense of two months ago, where his mother is the alleged victim.

Hypothetical #3

Sophie is currently detained on a pending delinquency charge. Her mother has said at the past two detention hearings that she doesn't want Sophie back home. There is an open CPS investigation against Sophie's mother. Sophie has a perfect detention report and wants to be released from detention. Sophie will do anything to get released!

JUVENILE DELINQUENCY PROCEEDINGS

LaToya Powell
School of Government
February 2016

Delinquent Juveniles

I. Law Enforcement Procedures [G.S. 7B-2000 through 7B-2109]

A. Ordinarily law enforcement may fingerprint or photograph a juvenile only after obtaining a nontestimonial identification order. However, a law enforcement officer or agency must fingerprint and photograph a juvenile any time all of the following circumstances exist:
   1. the juvenile was 10 years old or older when he or she allegedly committed a non-divertible offense (murder, first- or second-degree rape, first- or second-degree sexual offense, arson, a felony drug offense under Article 5 of G.S. Chapter 90, first-degree burglary, crime against nature, a felony involving the willful infliction of serious bodily injury, or a felony committed by use of a deadly weapon); and
   2. a complaint has been prepared for filing as a petition; and
   3. the juvenile is in the physical custody of law enforcement or the Division of Adult Correction and Juvenile Justice of the Department of Public Safety (DACJJ).

B. A county detention facility must photograph any juvenile in its custody who was at least 10 years of age when the juvenile allegedly committed a nondivertible offense.

C. Unless fingerprints and a photograph were taken under A or B (above) and have not been destroyed, a law enforcement officer or agency must photograph and fingerprint a juvenile who has been adjudicated delinquent, if the juvenile was 10 years old or older when he or she committed an offense that would be a felony if committed by an adult.

D. Nontestimonial identification procedures (including fingerprints and photographs other than those under the procedures described above) may be done only with a court order issued at the request of the prosecutor. [Note that the affidavit submitted with a request to take a blood specimen must show probable cause (not just reasonable grounds) to believe the juvenile committed the offense.]

E. Law enforcement officer may take a juvenile into "temporary custody" without a court order in the same circumstances an officer can arrest an adult without a warrant.

F. Before in-custody interrogation, a juvenile (under age 18) must be given the usual *Miranda* warning and also must be told that he/she has a right to have a parent, guardian, or custodian present.
   1. A juvenile under age 16 cannot waive the right to have a parent, guardian, or custodian present.
   2. No one else can waive the juvenile's rights on the juvenile's behalf.

II. Jurisdiction [G.S. 7B-1600 through 7B-1604]

A. Juvenile procedures apply when an offense allegedly was committed by a juvenile who was at least 6 and not yet 16 at the time of the offense.

B. Jurisdiction may continue until the juvenile is 18, 19, or 21, depending on the offense, unless terminated by the court earlier.

C. If proceeding is not completed before juvenile becomes 18, for a felony committed while age 13, 14, or 15, court has jurisdiction for limited purpose of holding probable cause and transfer hearings.

III. Intake, Diversion, and Petitions [G.S. Ch. 7B, Articles 17 and 18]

A. A complaint filed with the juvenile court counselor becomes a petition when the court counselor checks "approved for filing" and signs the form.

B. Upon receipt of a complaint alleging a divertible offense, juvenile court counselors must "make reasonable efforts" to meet with the juvenile and the juvenile's parent or guardian, if the Division has not previously received a complaint against the juvenile.

C. After evaluating a complaint, the court counselor may dismiss it, divert it, or approve it for filing, but after finding reasonable grounds to believe the juvenile committed a "nondivertible" offense, must approve the filing of the petition. These offenses are:
   1. Murder;
   2. First-degree rape or second-degree rape;
   3. First-degree sexual offense or second-degree sexual offense;
   4. Arson;
   5. Any felony violation of Article 5 of G.S. Chapter 90;
   6. First-degree burglary;
   7. Crime against nature; or
   8. Any felony that involves willful infliction of serious bodily injury on another or that was committed by use of a deadly weapon.

D. If the court counselor dismisses or diverts a complaint (does not approve the filing of a petition) the complainant has a right to have that decision reviewed by the prosecutor.

E. A petition can be filed only in the district in which the offense allegedly occurred.

F. Petition is filed with magistrate if clerk's office is closed.

IV. Secure Custody [G.S. 7B-1902 through 7B-1907]

A. Petition must be filed (with clerk, or magistrate if the clerk's office is closed) before a secure custody order is entered.

B. The court may order secure custody only after finding a reasonable factual basis to believe
   1. that the juvenile committed the offense alleged in the petition and
   2. that one of the following applies:
      a. The juvenile is charged with a felony and has demonstrated that s/he is a danger to property or persons.
      b. The juvenile is charged with a misdemeanor, at least one element of which is assault on a person, and has demonstrated that s/he is a danger to persons.
      c. The juvenile is charged with a misdemeanor in which the juvenile used, threatened to use, or displayed a firearm or other deadly weapon, and the juvenile has demonstrated that s/he is a danger to persons.
      d. The juvenile has demonstrated that the juvenile is a danger to persons and is charged with a violation of G.S. 20-138.1 (impaired driving) or 20-138.3 (driving after consuming alcohol or drugs).
      e. The juvenile was properly notified and willfully failed to appear on a pending delinquency charge or charges of violation of probation or post-release supervision.
      f. A delinquency charge is pending and there is reasonable cause to believe the juvenile will not appear in court.

g. The juvenile is an absconder from any residential facility operated by DACJJ, any detention facility in this state, or any comparable facility in another state.
h. There is reasonable cause to believe the juvenile should be detained for his/her own protection because s/he has recently suffered or attempted self-inflicted physical injury; and the juvenile has been refused admission by one appropriate hospital. [Custody is limited to 24 hours to determine need for hospitalization.]
i. The juvenile is alleged to have violated the conditions of his/her probation or post-release supervision and the juvenile is alleged to have committed acts that damage property or injure persons.
j. The juvenile has been adjudicated delinquent and the court finds secure custody is needed pending disposition or pending placement of the juvenile. [Custody review hearings are required every 10 days but may be waived with the juvenile's consent for no more than 30 calendar days.]
k. The juvenile is alleged to be undisciplined by virtue of being a runaway and the court finds secure custody is needed to evaluate the juvenile's need for medical or psychiatric treatment or to reunite the juvenile with the juvenile's parent, guardian, or custodian. [Custody is limited to 24 hours, excluding weekends and State holidays.]
l. The juvenile is alleged to be undisciplined and has willfully failed to appear after proper notice. [Custody is limited to 24 hours, excluding weekends and State holidays.]

C. If the secure custody order is issued by a judge, the juvenile may not be held in secure custody for more than 5 calendar days without either a hearing on the merits or a hearing to determine the need for continued custody. This hearing may not be continued or waived.
D. If the secure custody order is issued by a court counselor to whom the chief district judge has delegated authority, a hearing to determine the need for continued custody must be held on the day of the next regularly scheduled session of district court in the city or county where the order was entered or, if that would be longer than 5 calendar days, at another regularly scheduled session of district court in the district in which the order was entered. This hearing may not be continued or waived.
E. If the juvenile remains in custody after the hearing required by C. or D., above, hearings to determine the need for continued secure custody must be held at intervals of no more than 10 calendar days, unless waived with the juvenile's consent.
F. At every hearing on the need for continued secure custody,
    1. the state has the burden of providing clear and convincing evidence that restraints on the juvenile's liberty are necessary and that no less intrusive alternative will suffice;
    2. the court is not bound by the usual rules of evidence;
    3. the court is bound by the criteria set out in B.2., above, in determining whether continued custody is warranted; and
    4. the court may release the juvenile subject to appropriate restrictions on his/her liberty.
G. Physical restraints may not be used to transport a juvenile under the age of 10 for an evaluation of the juvenile's need for medical or psychiatric treatment, if the juvenile does not have a pending delinquency charge, except when it is "reasonably necessary for the safety of the officer, authorized person, or the juvenile."

V. First Appearance in Felony Cases [G.S. 7B-1808]

A. Required for every juvenile alleged to be delinquent for committing a felony.
B. Must be held within 10 days after the petition is filed.
    1. If the juvenile is in secure or nonsecure custody, the first appearance takes place at the first hearing on the need for continued custody.
    2. If the juvenile is not in custody, the court may continue the first appearance to a time certain, for good cause.
C. At the first appearance, the court must
    1. inform the juvenile of the allegations in the petition;
    2. appoint counsel for the juvenile if the juvenile is not represented by counsel;
    3. inform the juvenile of the date of the probable cause hearing if one is required; and
    4. inform the parent, guardian, or custodian that he or she is required to attend all hearings scheduled in the matter and may be held in contempt for failing to do so.

VI. Probable Cause and Transfer Hearings [G.S. 7B-2200 through 7B-2204; 7B-2603]

A. The court must conduct a probable cause hearing in any case in which a juvenile is alleged to be delinquent for committing a felony offense while age 13, 14, or 15, unless the juvenile's counsel signs a waiver and stipulates to a finding of probable cause.
B. The probable cause hearing must be held within 15 days after the juvenile's first appearance unless the court continues it for good cause.
C. After finding probable cause for first-degree murder, the court must transfer the case to superior court.
D. Upon finding probable cause for any other felony, the court must determine whether the juvenile should remain in juvenile court or be transferred to superior court.
E. A case may be transferred on the court's own motion as well as motion of the juvenile or the prosecutor.
F. The probable cause hearing and the transfer hearing are separate. They may occur on the same day unless (1) the juvenile has not received at least 5 days' notice of the intent to seek transfer and (2) the juvenile requests a continuance.
G. The adjudication hearing must also be a separate hearing from the probable cause and transfer hearings. The adjudication hearing may occur on the same day as probable cause or transfer unless continued by the court for good cause.
H. The court must consider the following factors in deciding whether to transfer, and a transfer order must state the reason for transfer.
    1. The juvenile's age and maturity.
    2. The juvenile's intellectual functioning.
    3. The juvenile's prior record and any prior attempts to rehabilitate the juvenile.
    4. Facilities or programs available to the court before the expiration of the court's jurisdiction, and the likelihood that the juvenile would benefit from treatment or rehabilitative efforts.
    5. Whether the alleged offense was committed in an aggressive, violent, premeditated, or willful manner.
    6. The seriousness of the offense and whether the protection of the public requires that the juvenile be prosecuted as an adult.

I. The juvenile may appeal the transfer to superior court for a hearing on the record. Notice of appeal must be given in open court or in writing within 10 days after entry of the order. A juvenile who does not appeal a transfer order to superior court cannot raise the issue of transfer in an appeal to the court of appeals after a conviction in superior court.

J. A juvenile whose case is transferred to superior court
   1. is entitled to pretrial release,
   2. if not released, must be held in a juvenile detention facility pending trial.

VII. Motions to Suppress Evidence [G.S. 7B-2408.5]

A. Motions to suppress may be filed before or during the adjudication hearing.

B. A motion made before the adjudication hearing must
   1. be in writing,
   2. state the grounds upon which it is made;
   3. contain an affidavit with facts supporting the motion; and
   4. be served upon the State.

C. The State may file an answer, which must be served on the juvenile's counsel, or the juvenile's parent or guardian if the juvenile has no counsel.

D. The court must summarily grant the motion if
   1. the motion complies with the requirements set out in paragraph B above, states grounds which require exclusion of the evidence, and the State concedes the factual allegations supporting the motion; or
   2. the State stipulates that the contested evidence will not be offered in the proceeding.

E. The court may summarily deny the motion if
   1. it does not allege a legal basis; or
   2. the affidavit does not, as a matter of law, support the ground alleged.

F. If no summary determination is made, the court must hold a hearing and state its findings of fact and conclusions of law in the record. The court must receive sworn testimony at the hearing.

G. A motion made during the hearing may be made orally or in writing and may be determined in the same manner as when made before the hearing.

H. An order denying a motion to suppress may be appealed along with a final order in the juvenile matter.

I. The exclusionary rule of G.S. 15A-974 applies to this section.

VIII. Adjudication Hearing [G.S. 7B-2400 through 7B-2414]

A. The hearing must be held "within a reasonable time" in the district in which the offense allegedly occurred.

B. The hearing must be a separate hearing from the probable cause and transfer hearings.

C. If there is an issue as to the juvenile's capacity to proceed, the provisions of G.S. 15A-1001, -1002, and -1003 apply.

D. The juvenile either "admits" or "denies" the allegations in the petition, and the court may accept a juvenile's admission only after
   1. complying fully with the requirements of G.S. 7B-2407(a) with regard to addressing the juvenile personally,
   2. determining that the admission is the juvenile's informed choice, and

3. determining that there is a factual basis for the admission.

E. Before admitting into evidence any statement resulting from custodial interrogation of the juvenile, the court must find that the juvenile knowingly, willingly, and understandingly waived his/her rights.
F. The state has the burden of proving the allegations in the petition beyond a reasonable doubt.
G. Jeopardy attaches in the adjudicatory hearing when the court begins to hear evidence.
H. The adjudication order must include the following findings:
   1. that the allegations in the petition have been proved beyond a reasonable doubt;
   2. the date of the offense;
   3. the felony or misdemeanor classification of the offense; and
   4. the date of the adjudication.
I. Testing for alcohol and substance abuse.
   1. If a juvenile is adjudicated delinquent for an offense involving possession, use, sale, or delivery of alcohol or a controlled substance, the court must order that the juvenile be tested for use of controlled substances or alcohol within 30 days of the adjudication.
   2. After a juvenile is adjudicated delinquent for any offense the court may require the juvenile to be tested for the use of controlled substances or alcohol.
   3. In either case, results of these initial tests may be used only for evaluation and treatment purposes.
J. After adjudication, the court may
   1. proceed to disposition after receiving a predisposition report, including a risk and needs assessment;
   2. continue the case for disposition; or
   3. transfer the case to the district of the juvenile's residence for disposition. (The case must be transferred if transfer is desired by the chief district court judge of the juvenile's home district or by the juvenile, unless the juvenile is in a residential facility or foster care in the district in which the offense occurred.)

IX. Dispositional Hearing [G.S. 7B-2500 through 7B-2517; G.S. 7B-2600]

A. Within statutory guidelines, the court must select a disposition designed to protect the public and to meet the needs and best interests of the juvenile.
B. The trial judge must inform the juvenile, either orally or in writing, about the juvenile's right to expunction under G.S. 7B-3200, if relevant to the juvenile's case, at the time of entering the disposition.
C. The disposition order must contain written findings demonstrating that the court considered the following factors:
   1. the seriousness of the offense;
   2. the need to hold the juvenile accountable;
   3. the importance of protecting the public safety;
   4. the degree of culpability indicated by the circumstances of the case;
   5. the rehabilitative and treatment needs of the juvenile, as indicated by a risk and needs assessment; and
   6. appropriate community resources available to meet the juvenile's needs.

D. **Dispositions Available in Every Case**

Dismissal or Continuance [G.S. 7B-2501(d)]
At the dispositional hearing in any case, the court may

1. dismiss the case, or
2. continue the case for up to 6 months to give the family an opportunity to meet the juvenile's needs through
    a. more adequate supervision at home,
    b. placement in a private or specialized school or agency,
    c. placement with a relative, or
    d. some other plan that the court approves.

Evaluation and Treatment [G.S. 7B-2502]
In every case, the court may order

1. examination of the juvenile by an expert.
2. medical, surgical, psychiatric, psychological, or other evaluation or treatment for the juvenile (and may order a parent or the county to pay for it).
3. testing of the juvenile for controlled substances or alcohol (required if adjudication is for an offense that involves possession, use, sale, or delivery of alcohol or a controlled substance).

If there is evidence that the juvenile is mentally ill or developmentally disabled, the court must refer him/her to the local mental health, developmental disabilities, and substance abuse services director for an interdisciplinary evaluation and the mobilization of resources to meet the juvenile's needs.

The court may never commit the juvenile directly to a state hospital or mental retardation center. Except for purposes of an evaluation of the juvenile's capacity to proceed, a juvenile's admission to a state hospital must be by consent of an authorized person or by way of an involuntary commitment proceeding.

E. **Level 1 Dispositions** [G.S. 7B-2506(1) – (13), (16); G.S. 7B-2508(c)]
In addition to the evaluation, treatment, dismissal, and continuance options described above, the Juvenile Code lists 24 dispositional alternatives that are divided into 3 "levels"

- Community (Level 1)
- Intermediate (Level 2)
- Commitment (Level 3)

Community (Level 1) dispositions are available in every case in which a juvenile has been adjudicated delinquent. Specific factors discussed below determine whether the court must select a disposition from Level 2 or Level 3, but even when that is the case, the court also may select a Level 1 disposition. So, following adjudication in any case, the court may:

1. order
    a. supervision of the juvenile in his own home, subject to conditions placed on the juvenile or the parent; or

b. placement of the juvenile in the custody of a parent, a relative, DSS, or another suitable person.

2. excuse the juvenile from compulsory school attendance when suitable alternative plans can be arranged.
3. order the juvenile to cooperate, for up to 12 months, with
   - a community-based program,
   - an intensive substance abuse treatment program, or
   - a residential or nonresidential treatment program.
4. order the juvenile to pay restitution of up to $500.
5. impose a fine (not to exceed maximum fine for an adult for the same offense).
6. order the juvenile to perform up to 100 hours of community service.
7. order the juvenile to participate in a victim-offender reconciliation program.
8. place the juvenile on probation.
9. order that the juvenile not have a driver's license.
10. impose a curfew.
11. order the juvenile not to associate with particular people or be in specific places.
12. order intermittent detention for up to five 24-hour periods specified by the court.
13. order the juvenile to cooperate with placement in a wilderness program.
14. order the juvenile to cooperate with a supervised day program.

F. **Level 2 Dispositions** [G.S. 7B-2506(13) – (23); G.S. 7B-2508(d)]

Two dispositional options – placement in a wilderness program and participation in a supervised day program – are categorized as both Level 1 and Level 2 dispositions. Thus, either of these may satisfy a requirement that the court order a Level 2 disposition, but they also are available when the court is limited to Level 1 dispositions.

When a Level 2 disposition is required or available, the court may:

1. order the juvenile to cooperate with placement in a wilderness program.
2. order the juvenile to cooperate with a supervised day program.
3. order the juvenile to cooperate with placement in a residential treatment facility, an intensive nonresidential treatment program, an intensive substance abuse program, or a group home other than a state-operated multipurpose group home.
4. place the juvenile on intensive probation.
5. order the juvenile to participate in a regimented training program.
6. order the juvenile to submit to house arrest.
7. suspend a more severe disposition, on the condition that the juvenile meet certain conditions agreed to by the juvenile.
8. order intermittent detention for up to fourteen 24-hour periods specified by the court.
9. place the juvenile in a state-operated residential multipurpose group home.
10. require the juvenile to pay restitution of more than five hundred dollars ($500.00).
11. order the juvenile to perform up to 200 hours of community service.

G. **Level 3 Disposition** [G.S. 7B-2506(24); G.S. 7B-2508(e); G.S. 7B-2513]
The only Level 3 disposition is commitment of the juvenile to the Division of Adult Correction and Juvenile Justice for a period of at least 6 months for placement in a youth development center. (While the commitment must last at least 6 months, after the department's initial assessment of the juvenile at a youth development center, the court may approve a plan for providing commitment services at a different location.)

NOTE: Virtually every commitment must:

1. be for a minimum of 6 months;
2. otherwise, be for an *indefinite* period of time;
3. specify an absolute maximum (age 18, 19, or 21); and
4. specify the time before which the juvenile must have notice and an opportunity for a hearing on extension of the commitment beyond either
    a. the adult maximum or
    b. the juvenile's 18th birthday, if extended commitment (to age 19 or 21) is an option in the case.

H. **Determining Which Dispositions Are Available in a Particular Case**

The evaluation, treatment, dismissal, continuance, and community (Level 1) dispositions are available in every case. Whether the court either may or must order an intermediate (Level 2) or commitment (Level 3) disposition depends primarily on 3 factors:

1. the nature of the adjudicated offense that is the basis for the disposition;
2. the juvenile's delinquency history level; and
3. whether the juvenile was on probation at the time of the offense for which a disposition is being ordered.

These 3 factors determine a cell on the "Dispositional Chart" that specifies either a level or a choice of two levels from which the court must select a disposition. Factors that come into play to determine whether an exception exists to the level(s) indicated on the Chart include:

- whether the juvenile previously has been committed to a youth development center;
- whether the juvenile has been a "chronic" offender; and
- whether the juvenile has "extraordinary needs."

1. **Offense Classification.** Offenses are classified as:
    - Violent: Class A through E felonies
    - Serious: Class F through I felonies and Class A1 misdemeanors
    - Minor: Class 1, 2, and 3 misdemeanors

A critical first step at every disposition is to determine the one offense that is the basis for the disposition. [It also is critical to distinguish between disposition hearings and hearings on violation of probation or post-release supervision, since different rules apply in

violation hearings.] Multiple adjudications in the same session of court must be consolidated for disposition and be considered on the basis of the most serious offense.

First Determination: The disposition being entered is for a _____ (Violent, Serious, or Minor) offense.

2. **Delinquency History Level.** A juvenile has a low, medium, or high delinquency history level, based on any prior delinquency adjudications and the juvenile's probation status when the current offense was committed. (A "prior adjudication" is an adjudication of an offense that occurred before the adjudication of the offense for which a disposition is being ordered.) These are assigned points as follows:

   - each prior adjudication of a Violent offense (Class A through E felony): 4 points
   - each prior adjudication of a Serious offense (Class F through I felony or Class A1 misdemeanor): 2 points
   - each prior adjudication of a Minor offense (Class 1, 2, or 3 misdemeanor): 1 point
   - juvenile's status of being on probation when s/he committed the offense for which a disposition is being ordered: 2 points

   If the juvenile was adjudicated delinquent for more than one offense in a single session of district court, only the adjudication for the offense with the highest point total is used. This rule applies even if the adjudications are for unrelated offenses that occurred on different dates. The key is whether they were adjudicated on the same date. Points are not assigned for the offense for which a disposition is being ordered.

3. **Probation Status.** Two points are added if the offense for which disposition is being ordered was committed while the juvenile was on probation. (The juvenile's probation status when s/he committed any prior offenses is not relevant and does not result in the assignment of additional points.)

   The juvenile's delinquency history level is classified as follows:

Low:	0 – 1 point
Medium:	2 – 3 points
High:	4 or more points

Second Determination: The juvenile has _____ points and therefore has a _____ (Low, Medium, or High) delinquency history level.

Dispositional Chart for Delinquency Cases

Knowing the offense classification and the juvenile's delinquency history level leads to a cell in the following Disposition Chart:

Offense	Delinquency History Level		
	Low (0-1 point)	**Medium (2-3 points)**	**High (4 or more points)**
Violent	Level 2 or 3	Level 3[1]	Level 3[1]
Serious	Level 1 or 2[2]	Level 2[2]	Level 2 or 3
Minor	Level 1	Level 1 or 2[2]	Level 2[2]

Third Determination: According to the Chart, the court must order a disposition from
___ Level 1 ___ Level 1 or 2 ___ Level 2 ___ Level 2 or 3 ___ Level 3.

Dispositional Chart Exceptions

- **Previous commitment.** [G.S. 7B-2508(d)]
  When the Chart authorizes or requires a Level 2 disposition but not a Level 3 disposition, the court nevertheless may order a Level 3 disposition, *i.e.*, commitment, if the juvenile has been committed before. This means that if the juvenile has been committed previously, he can be committed again at any subsequent delinquency disposition hearing.

- **History of chronic offending.** [G.S. 7B-2508(g)]
  The Chart suggests that a Level 3 disposition is never an option when the court is ordering disposition for a minor offense, and that is almost always the case. The court may order a Level 3 disposition for a minor offense, however, if the juvenile has been adjudicated delinquent for four or more prior offenses. "Prior," in this context, has a different meaning from the one used to determine a juvenile's delinquency history level. Here, a prior offense is one that was committed and adjudicated before commission of the next offense.

- **Extraordinary needs.** [G.S. 7B-2508(e)]
  When the Chart indicates that only a Level 3 disposition may be ordered, the court nevertheless may order a Level 2 disposition instead, if the court makes written findings substantiating that the juvenile has extraordinary needs. The appellate courts have not had occasion to interpret "extraordinary needs."

[1] The court may order a Level 2 disposition if the court finds that the juvenile has extraordinary needs.

[2] The court may order a Level 3 disposition if the juvenile has been committed previously to a youth development center (or training school).

Fourth Determination: Despite the level(s) indicated on the Chart, an exception authorizes the court to enter a disposition from
___ Level 2 ___ Level 3 ___ not applicable

X. Probation [G.S. 7B-2510]

Conditions. When the court places a delinquent juvenile on probation, the court may impose conditions that are related to the juvenile's needs and that are reasonably necessary to ensure that the juvenile will lead a law-abiding life. The code lists a number of permissible conditions, including the following:

- not violate any reasonable and lawful rules of a parent, guardian, or custodian;
- refrain from the use or possession of any controlled substance included in any schedule of the Controlled Substances Act, Article 5 of G.S. Chapter 90;
- refrain from the use or possession of any alcoholic beverage regulated under G.S. Ch. 18B;
- submit to random drug testing;
- abide by a prescribed curfew;
- submit to a warrantless search at reasonable times;
- not possess a firearm, explosive device, or other deadly weapon;
- satisfy any other conditions that the court determines to be appropriate.

In addition, the court may order the juvenile to comply, if directed to do so by the chief court counselor, with one or more of the following conditions:

1. perform up to 20 hours of community service;
2. submit to substance abuse monitoring and treatment;
3. participate in a life skills or educational skills program administered by DACJJ;
4. cooperate with electronic monitoring (but only if juvenile is subject to Level 2 disposition);
5. cooperate with intensive supervision (but only if juvenile is subject to Level 2 disposition).

Violations. After notice and a hearing, if the court finds by the greater weight of the evidence that the juvenile has violated the conditions of probation, the court may

1. continue the original conditions of probation,
2. modify the conditions, or
3. order a new disposition.
    - The court, however, may not order a Level 3 disposition for a probation violation by a juvenile who was adjudicated delinquent for a minor offense.
    - The court may either increase the disposition level to the next higher level on the disposition chart or order up to twice the amount of detention days authorized by G.S. 7B-2508, but may not do both.

Term. A term of probation may not exceed one year, unless the court extends it for one additional year after notice and a hearing. Upon finding that the juvenile no longer needs supervision, the court may terminate probation by entering an order either

1. in chambers, without the juvenile present, based on a report from the court counselor, or
2. with the juvenile present, after notice and a hearing.

XI. Youth Development Center Commitments [G.S. 7B-2513 through 7B-2516]

A. Every commitment of a juvenile to DACJJ must be for a period of at least 6 months.
B. Ordinarily, the length of the term beyond the 6-month minimum is indefinite; however, a definite commitment of no more than 2 years is an option if the juvenile
   1. is at least 14,
   2. has been adjudicated delinquent previously for 2 or more felony offenses, and
   3. has been committed to a youth development center previously.
C. Any juvenile committed to DACJJ must be tested for use of controlled substances or alcohol. Results of initial tests may be used only for evaluation and treatment purposes.
D. DAJCC may seek approval from the court to physically place a committed juvenile in a program located somewhere other than a youth development center or detention facility.
E. A juvenile's commitment may never exceed
   1. the juvenile's 21st birthday, if the juvenile is committed for first-degree murder, first-degree rape, or first-degree sexual offense;
   2. the juvenile's 19th birthday, if the juvenile is committed for a Class B1, B2, C, D, or E felony other than one of the offenses listed above; or
   3. the juvenile's 18th birthday, if the juvenile is committed for any other offense.
F. Except for the 6-month minimum, a juvenile ordinarily may not be kept in a youth development center longer than the maximum adult sentence for the same offense.
G. A juvenile's commitment may be extended past the adult maximum or past age 18 (in cases in which jurisdiction goes to age 19 or 21) only as follows:
   1. DACJJ determines a longer period is necessary to carry out a plan of care or treatment.
   2. DACJJ notifies juvenile and parent, guardian, or custodian at least 30 days before end of the maximum commitment period or 30 days before the juvenile's 18th birthday, of
      a. the proposed additional commitment period,
      b. the basis for the proposed extended commitment, and
      c. a plan for future care or treatment.
   3. The plan must specify goals and outcomes that require additional time, the proposed course of treatment or care, and efforts that will be made to help the family create an environment that will increase the likelihood that efforts to treat and rehabilitate the juvenile will be successful upon the juvenile's release.
   4. At the request of the juvenile or the juvenile's parent the court must conduct a hearing to review DACJJ's decision to extend the commitment. The court may affirm or modify DACJJ's decision. If none of those persons requests a review of DACJJ's decision, it becomes the juvenile's new maximum commitment period.
H. At the time of the initial commitment, the court must notify the juvenile of the maximum period of time the juvenile may remain committed before DACJJ must make a determination about whether to extend the commitment.

I. After release, every juvenile must be subject to post-release supervision for at least 90 days but not more than one year.
   1. On motion of the juvenile or the court counselor, or the court's own motion, the court may conduct a hearing to review the progress of a juvenile on post-release supervision.
   2. If the court finds that the juvenile has violated terms of post-release supervision, the court may revoke the post-release supervision or make any disposition authorized by the Code.
   3. If the court revokes post-release supervision, juvenile must return to DACJJ for indefinite term of at least 90 days, subject to the maximum commitment periods described earlier.

XII. Authority over Parent, Guardian, or Custodian [G.S. 7B-1805; 7B-2700 to 7B-2707]

The court has jurisdiction over a juvenile's parent, guardian, or custodian if that person has been served with a summons in the case. The summons gives the parent, guardian, or custodian notice of the kinds of orders the court may enter at disposition. It also notifies the parent, guardian, or custodian that proceedings for contempt may result from that person's failure, without reasonable cause, to attend scheduled hearings, bring the juvenile to court at any hearing the juvenile is required to attend, or comply with any order of the court.

The Code requires the parent, guardian, or custodian of a juvenile under the juvenile court's jurisdiction to attend all hearings of which that person has notice, unless the court has excused the person's appearance at a particular hearing or all hearings. After adjudication that a juvenile is delinquent, the court may order the juvenile's parent, guardian, or custodian to

- cooperate with and assist the juvenile in complying with the terms and conditions of probation or other court orders;
- attend parental responsibility classes, if these are available in the judicial district in which the person resides;
- provide transportation, to the extent the person is able to do so, for the juvenile to keep appointments with a court counselor or to comply with other orders of the court.

The court may order a parent who is able to do so to (1) pay a reasonable amount of child support; (2) pay a fee for probation supervision or residential facility costs; (3) assign private insurance coverage to cover medical costs while the juvenile is in detention, a youth development center, or other out-of-home placement; or (4) pay court-appointed attorney fees. The court also may order a parent to cooperate with treatment the juvenile needs; undergo treatment that the parent needs; and, if able to do so, pay for various evaluation and treatment the court orders.

To assist parents in complying with the these requirements, the Code prohibits any employer from discharging, demoting, or denying a promotion or other benefit of employment to any employee because of that person's compliance with any obligations the Code places on a juvenile's parent, guardian, or custodian.[3]

[3] The Code charges the Commissioner of Labor with enforcing the prohibition pursuant to Article 21 of G.S. Chapter 95. In that chapter, G.S. 95-241(a) prohibits any person from discriminating or taking retaliatory action against an employee because the employee in good faith complies or threatens to comply with obligations under the Juvenile Code.

XIII. Registration of Juvenile Sex Offender [G.S. 7B-2509; 14-208.26 to 14–208.32]

As part of a disposition, the court may order a juvenile to register with the sheriff if all of the following conditions are met:

A. The juvenile was adjudicated delinquent for one of the following offenses:
   1. first or second degree rape,
   2. first or second degree sexual offense,
   3. attempted rape or sexual offense,
   4. aiding and abetting rape or sexual offense, or
   5. conspiracy or solicitation of another to commit rape or sexual offense.
B. The juvenile was at least 11 years old when the offense was committed.
C. The court finds that the juvenile is a danger to the community.

The court is never required to order a juvenile to register. If an adjudication of delinquency is based on one of the specified offenses, committed when the juvenile was at least eleven, the court is required to consider whether the juvenile is a danger to the community and if so, to consider whether the juvenile should be required to register.

When a juvenile is required to register as part of a delinquency disposition, the information about the registered juvenile is available only to law enforcement agencies. The sheriff must maintain it separately, may not include it in the county or statewide registries, and may not make it available to the public via the internet or otherwise. The information is included in the Police Information Network. The registration requirement terminates automatically on the juvenile's 18th birthday or when the juvenile court's jurisdiction ends, whichever occurs earlier.

XIV. Modification and Termination of Disposition Orders [G.S. 7B-2600, 7B-2601]

The juvenile or any other party may file a motion for review at any time. After a hearing, the court may modify or vacate the disposition based on changed circumstances or the needs of the juvenile. The court also may shorten or change the disposition if the court finds that it was imposed illegally or is "unduly severe" in relation to the seriousness of the offense, the juvenile's culpability, or dispositions given to other juveniles adjudicated delinquent for similar offenses.

The Division, through the court counselor, may initiate review hearings for alleged violations of probation or post-release supervision, or for any other reason. In the case of a juvenile who is committed to a youth development center, the Division may seek a review and a modification of the disposition if it finds that the juvenile is not suitable for youth development center programs.

The court's jurisdiction over a juvenile does not end automatically just because the juvenile's probation, post-release supervision, commitment, treatment, or other specific dispositional requirement ends. Unless the court enters an order terminating jurisdiction earlier, the court's authority to enter or modify orders affecting the juvenile continues until

1. the juvenile's 18th birthday, or
2. the juvenile's 19th birthday if the juvenile was committed to a youth development center for an offense that would be a Class B1, B2, C, D, or E felony if committed by an adult, or
3. the juvenile's 21st birthday if the juvenile was committed to a youth development center for first-degree murder, first-degree rape, or first-degree sexual offense.

Stages of Juvenile Proceedings: Delinquent and Undisciplined Juveniles

1. Law enforcement procedures – G.S. 7B-2100 through –2109
2. Temporary custody – G.S. 7B-1900, -1901
3. Complaints/reports – G.S. 7B-1803
4. Intake services – G.S. 7B-1700 through -1705
   a. Complaint screened out
   b. Case diverted and closed
   c. Case diverted with plan or contract, and monitored for up to six months
   d. Complaint approved for filing as petition
5. Filing of petition; issuance of summons; service – G.S. 7B-1800 through -1806
6. Appointment of counsel; appointment of guardian – G.S. 7B-2000 through –2002
7. Secure and nonsecure custody orders – G.S. 7B-1902 through -1905, -1907
8. Hearings on need for continued secure or nonsecure custody – G.S. 7B-1903, -1906
9. First appearance for all felony cases – G.S. 7B-1808
10. Probable cause hearing (if felony committed when juvenile 13, 14, or 15) – G.S. 7B-2202
11. Transfer hearing (if probable cause found) – G.S. 7B-2200, -2201, -2203, -2204
12. Discovery – G.S. 7B-2300 through -2303
13. Motions to suppress; procedure – G.S. 7B-2408.5
14. Adjudicatory hearing – G.S. 7B-2400 through -2412, -2414; G.S. 7B-1501(7) and (27)
15. Dispositional hearing – G.S. 7B-2413, -2500, -2501
    a. Dispositions available for undisciplined juveniles – G.S. 7B-2502 through -2505
    b. Dispositions available for delinquent juveniles – G.S. 7B-2502, -2506 through -2511
    c. Dispositional order – G.S. 7B-2512
    d. Orders that may be directed to parents – G.S. 7B-2700 through -2706
16. Contempt by parent, guardian, or custodian – G.S. 7B-2706; G.S. Ch. 5A
17. Violation of protective supervision by undisciplined juvenile – G.S. 7B-2505
18. Probation violation hearing for delinquent juvenile – G.S. 7B-2510
19. Hearing on motion for community commitment – G.S. 7B-2513(e)
20. Post-release supervision violation hearing for delinquent juvenile – G.S. 7B-2516
21. Hearing on need for extended commitment to youth development center – G.S. 7B-2515
22. Modification and Appeals – G.S. 7B-2600 through -2602; -2604 through -2606
23. Termination of jurisdiction – G.S. 7B-1600 through -1604, -2600(c)

<u>All hearings</u> –

- Notice of hearings. G.S. 7B-1807
- Closure of a hearing. G.S. 7B-2402
- Restraint of juvenile in the courtroom. G.S. 7B-2402.1
- Continuances. G.S. 7B-2406

Hearing Deadlines in Cases of Delinquent or Undisciplined Juveniles
G.S. Chapter 7B, Subchapter II

§ 7B-1808(a).	First appearance in all felony cases	Within 10 days of the filing of the petition.	Court may continue to time certain unless juvenile is in secure or nonsecure custody.
§ 7B-1808(b). § 7B-2202(a).	Probable cause hearing in felony cases for juvenile age 13, 14, or 15.	Within 15 days of the first appearance.	Court may continue the hearing for good cause.
§ 7B-1906(a).	First hearing on need for continued secure custody. or If custody order entered by someone with delegated authority, not a judge.	Within 5 calendar days after juvenile placed in custody. Day of next scheduled session of district court in city or county where the order was entered, or within 5 calendar days, whichever is earlier.	Cannot be continued or waived.
§ 7B-1906(a).	First hearing on need for continued nonsecure custody. or If custody order entered by someone with delegated authority, not a judge.	Within 7 calendar days after juvenile placed in custody. Day of next scheduled session of district court in city or county where the order was entered, or within 7 calendar days, whichever is earlier.	Cannot be continued or waived.
§ 7B-1906(b).	Second and subsequent hearings on need for continued secure custody.	Within 10 calendar days of first hearing, then at intervals of no more than 10 calendar days, as long as juvenile remains in custody.	May be waived only with consent of the juvenile, through counsel for the juvenile.
§ 7B-1906(b).	Second and subsequent hearings on need for continued nonsecure custody.	Within 7 business days of first hearing, then at intervals of no more than 30 calendar days.	If juvenile alleged to be delinquent, may be waived only with consent of the juvenile, through counsel for the juvenile.
§ 7B-1903(c).	Post-adjudication hearings on need for continued secure custody pending disposition or out-of-home placement.	At intervals of no more than 10 calendar days, as long as juvenile remains in custody.	May be waived only with consent of the juvenile, but for no more than 30 calendar days.

§ 7B-2403. § 7B-2406.	Adjudication hearing.	Within a "reasonable time."	May be continued for good cause; otherwise, court may continue only in extraordinary circumstances when necessary for proper administration of justice.
§ 7B-2510(c).	Extension of probation hearings that occur after the initial probation term has expired.	At the next regularly scheduled court date; or at the court's discretion, if the juvenile fails to appear.	
§ 7B-2515.	Extension of juvenile's commitment beyond 18th birthday or maximum commitment period (if requested by the juvenile or the juvenile's parent, guardian, or custodian).	Before the juvenile's 18th birthday or completion of the maximum period of commitment.	

Hearing Deadlines in Proceedings under the Interstate Compact for Juveniles
G.S. Chapter 7B, Article 40 and ICJ Rules

ICJ Rule 6-103	Requisition hearing for the non-voluntary return of an out-of-state runaway or accused status offender.	Within 30 calendar days of receipt of Form I – Requisition for Runaway Juvenile.	Court may continue hearing with approval of both ICJ offices (home state and holding state).
ICJ Rule 6-103A	Requisition hearing for the non-voluntary return of an out-of-state escapee, absconder, or accused delinquent juvenile.	Within 30 calendar days of receipt of Form II – Requisition for Escapee, Absconder, or Accused Delinquent Juvenile.	Court may continue hearing with approval of both ICJ offices (home state and holding state).
ICJ Rule 7-105	Hearing on the need for continued secure custody when the home state has failed to return the juvenile within the time required by this Rule (i.e., 5 business days after receipt of the order granting the requisition, unless extended with consent of both ICJ offices).	Within 10 business days after the failure of the home state to return the juvenile within the time required by the ICJ Rules.	

DISCOVERY

Developing Pre-Adjudication Investigation & Discovery Plan

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Attorney & Counselor At Law

What is the PURPOSE of juvenile court?!

What are your goals?

What does your kid want?

How do you get there?

Good planning starts at the end!!

What are your Dispositional options?

Trial
Admit to offense & probation
or admit lesser & probation
Adjudication but no disposition (7B-2501d)
“ADA” Deferral with conditions
Deferral programs: Teen Ct / Mediation
Extended continuance (w/services)
Dismissal

“discovery”

- Legal:
  What happened?
- Personal:
  WHO is my kid?

DISCOVERY
7B-2300

ALWAYS have right to it
- not just felony
- not just after PC hearing

"Upon motion of the juvenile"
(does NOT say written)
But do written motions!

Entitled to

(a) All statements of juv & Co-R/Co-D

(b) List of State's witnesses (w/juv record)

(c)Documents/tangible evidence from ADA/LEO
material to defense/ to be used by petitioner / obtained from juv.

(d)Test reports & Sample of physical evid.

BRADY

Constitutional issues DO apply to kids!
- Don't forget *Gault* -387 US 1 (1967)

7B-2405- Conduct of Adj. hearing:
Court "SHALL protect…rights of juvenile"
- 5) right of discovery
- 6) ALL rights afforded adult offenders
  - (except: bail, jury & self-rep)

Reciprocal Discovery

7B-2301 Tracks what State has to give you
Witness list & reports/evidence you intend to use at trial

DIFFERS FROM ADULT: (15A-905c)
NO requirement to give notice of specified defenses
Best practice? give it, if plan to use

Continuing Duty

7B-2303
"subject to compliance with order issued…shall promptly notify"

Applies to ADA & defense atty!

Can use to add witness you left off, if discover need DURING trial

Timing

Get ALL discovery before you decide what to do!

Request continuance if needed
St. v. Cook, 362 NC 285 (reversible error to not grant MTC – harmless in this case)

Pre-Disposition Investigation 7B-2413

BEWARE 5th Amendment problems!
NOT admissible prior to dispo (7B-2408)

GET dispo report & risk/needs assessment before trial (but ADA should NOT get it)

Check your local rules

What can you get?

LEO reports
JCC complete record
School records
DSS records
Medical records
Mental Health records
YOUR OWN evaluation(s)

Or make your own!

Other support:
teacher, coach, church, boss, relatives, neighbors

Your kid's OWN exhibits:
letters, trophies, essays, power points

Who?

- School
- DSS
- Medical
- Mental Health
- JCC
- Digital !!
- Phone records
- Bank records
- Business records
- Video surveillance tapes/cell phones
- LEO Internal Affairs
- Victims
- Witnesses

SCHOOL

Your client's entire file: 115C (release)
grades,IEP,suspensions,manifestation results…

Maybe victim's- partial: (court order)
if prior fights and claiming self-defense
if Brady info?

DSS

Your client's entire file= "absolute right"
7B-2901(b) (ex parte court order)
In re: J.L. (2009 NC App LEXIS 1494)

Victim's file = partial: (court order)
CPS investigation in sex cases
Prior allegations that were recanted

Penn v. Ritchie, 480 Us 39 (1987)

Defense requests/subpoenas documents
- State may try to quash

Judge MUST:
- do in camera review &
- release ALL Brady material &
- seal ALL for appellate review

NOT just for DSS records!!!

MEDICAL & MH

Your client's - entire files ="absolute right"
7B-2901(b) (HIPPA release)

Victim's file – partial: (court order)
- medical records of alleged injury
- bills to prove restitution amounts
- MH records – in camera, if Brady info

Juv. Court Counselor

Your client's entire file - 7B-3001(b)(1)
(request form)

And NC JOIN records!

CAVEAT: 7B-2408 & 5th Amendment!
- Inadmissible pre-adjudication
- Should not even be shown to ADA!
  - (but YOU can – if helps)

OTHERS

Phone, internet, business, bank, LEO
Victim's NTO?

ANY evidence "material to your defense"!

ASK FOR IT!! - preserve record
Constitutionalize: Brady, "due process"

Subpoena or Court Order?

Try subpoena first

If State tries to quash, have hearing & in camera review of records requested
(BRADY always applies!)

Need court order for bank records – 53B
BUT ADA should have to get & disclose

Motion to Compel

After signed order for discovery
or after non-compliance w/ voluntary.

Don't HAVE to do written request
7B-2301(f) "nothing prohibits voluntary"

ADA has duty to get it for you!

Private Investigator

Juvenile has RIGHT to investigator
Can do Ex Parte Motion (AOC form)

Showing:
- Specify reasons why need investigator
- Allege "Necessary for defense"
- Reasonable amount
  - (w/ right to ask for more)

Mental Health Evaluations

Can do Ex Parte motion for eval of client:
competency to proceed
diminished capacity
transfer hearings

Forensic eval for Juvenile's competency:
Look at "ability to aid atty in defense" issues!

Now that I have it, what do I do with it?

What are your Dispositional options?

Dismissal
Extended continuance (w/services)
Deferral programs (Teen Ct / mediation)
Deferral with conditions
Adjudication but no disposition
Admit to offense or lesser & probation
Trial

Meet with ADA:
- present your kid (not your case)

Prepare your case:
- file motions
- prepare witnesses
- plan trial

CAVEAT

Be careful with all that has been gathered

Protect your kid's future!

Motions to Seal
7B-3000(c)

Protect your client's privacy!

JCC puts Mental Health and SOSE with the disposition report in clerk's file.

Order ANY sensitive info sealed after disposition hearing.

Print Destruction Orders
7B-2102(e) & 2108

No petition filed within 1 year

No PC found

Juv not adjudicated (case dismissed)

Under 13- no felony adjudication (2108)

LEO must certify back to clerk that they destroyed fingerprints/photos (7B-2108(6))

EVIDENCE BLOCKING

Evidence Blocking*

Jonathan Rapping**

* The term "evidence blocking" and the ideas set forth in this paper come from my colleague and mentor at the D.C. Public Defender Service, Jonathan Stern. Mr. Stern honed the practice of evidence blocking to an art. There is not a concept in this paper that I did not steal from Mr. Stern, including examples presented. He deserves full credit for this paper.

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I. Facts of the World v. Facts of the Case

If a tree falls in the woods and no one is there to hear it, does it make a sound? We may confidently answer, "yes." However, we cannot, with certainty, know what exactly it sounded like. Scientists might estimate what the sound would have been based on whatever factors scientists use, but that will be an approximation. They may disagree on the density of other vegetation in the area that would affect the sound, or the moisture in the soil that may be a factor. Perhaps the guess will be close to the actual sound. Perhaps not. We can never know for sure. A trial is the same way. It is a recreation, in a courtroom, of a series of events that previously took place. There are disagreements over factors that impact the picture that is created for the jury. The picture painted for the jury is affected by biases of the witnesses, the quality and quantity of evidence that is admitted, and the jury's own viewpoint. In the end, the picture the jury sees may be close to what actually occurred or may be vastly different.

Understanding that the picture that is painted for the jury is the one that matters is central to the trial lawyer's ability to be an effective advocate. It is helpful to think of facts in two categories: facts of the world and facts of the case. The first category, facts of the world, are the facts that actually occurred surrounding the event in question in our case. We will never know with certainty what the facts of the world are. The second category, facts of the case, are the facts that are presented at trial. It is from these facts that the fact-finder will attempt to approximate as closely as possible the facts of the world. The fact-finder will never be able to perfectly recreate a picture of what happened during the incident in question. How close the fact-finder can get will be a function of the reliability and completeness of the facts that are presented at trial.

II. The Difference Between Prosecutors and Defense Attorneys

By understanding that the outcome of the trial is a function of the facts of the case, we have a huge advantage over the prosecution. The prosecutor tends to believe he knows the "truth." He thinks the facts of the world are perfectly reflected by his view of the evidence known to him. When the facts of the case point to a conclusion that is different from the one he believes he knows to be true, the prosecutor is unable to adjust. He can't move from the picture he has concluded in his mind to be "true." Therefore, he renders himself unable to see the same picture that is painted before the jury at trial. The good defense attorney understands she is incapable of knowing the "truth." She focuses on the facts of the case. She remains flexible to adjust to facts that are presented, or excluded, that she did not anticipate. In that sense she is better equipped to see

the picture the jury sees and to effectively argue that picture as one of innocence, or that at least raises a reasonable doubt.

The ability to think outside the box is one of the main advantages defense attorneys have over prosecutors. It is a talent honed out of necessity. We necessarily have to reject the version of events that are sponsored by the prosecution. They are a version that points to our client's guilt. We must remain open to any alternative theory, and proceed with that open mind throughout our trial preparation.

Prosecutors generally develop a theory very early on in the investigation of the case. Before the investigation is complete they have usually settled on a suspect, a motive, and other critical details of the offense. In the prosecutor's mind, this version of events is synonymous with what actually happened. In other words, the prosecutor assumes he knows the "truth." The fundamental problem with this way of thinking is that all investigation from that point on is with an eye towards proving that theory. Instead of being open minded about evidence learned, there is a bias in the investigation. Evidence that points to another theory must be wrong. When it comes to a witness who supports the government's theory but, to an objective observer, has a great motive to lie, the prosecutor assumes the witness is truthful and that the motive to lie is the product of creative defense lawyering. This way of thinking infects the prosecution at every level: from the prosecutor in charge of the case to law enforcement personnel who are involved with the prosecution. Whether the prosecution theory ultimately is right or wrong, this mid-set taints the ability to critically think about the case.

Good defense attorneys don't do this!!! We understand that the "truth" is something we will almost certainly never know and that, more importantly, will not be accurately represented by the evidence that makes it into the trial. We understand that a trial is an attempt to recreate a picture of historical events through witnesses who have biases, mis-recollections, and perceptions that can be inaccurate. We know trials are replete with evidence that is subject to a number of interpretations and that the prism through which the jury views this evidence depends on the degree to which, and manner in which, it is presented. In short, as defense attorneys, we understand that a trial is not about what "really happened." Rather, it is about the conclusions to which the fact-finder is led by the facts that are presented at trial. This may closely resemble what actually occurred or be far from it. We will never know. As defense attorneys we deal with the facts that will be available to our fact-finder. To do otherwise would be to do a disservice to our client.

For example, imagine a case that hinges on one issue, whether the traffic light was red or green. The prosecutor has interviewed ten nuns, all of whom

claim to have witnessed the incident in question. Each of the ten nuns insists that the light was green. The defense has one lone witness. This witness says the light was red. At trial, not a single nun shows up to court. The only witness to testify to the color of the light is the lone defense witness, who says it was red. The prosecutor sees this case as a green light case in which one witness was wrong. The jury, on the other hand, sees only a red light case. It knows nothing of the nuns. The only evidence is that the light was red. As defense attorneys we must also see the case as a red light case. These are the only facts of the case. Even assuming the ten nuns were correct, that the light was green, those facts are irrelevant to this case and the jury that will decide it.

III. The Art of Evidence Blocking

The defense attorney's job is to shape the facts of the case in a manner most favorable to her client. She must be able to identify as many ways as possible to keep facts that hurt her client from becoming facts of the case. Likewise, she must be thoughtful about how to argue the admissibility of facts that are helpful to her client's case. This requires a keen understanding of the facts that are potentially part of the case and a mastery of the law that will determine which of these facts become facts of the case.

As a starting proposition, the defense attorney should consider every conceivable way to exclude every piece of evidence in the case. Under the American system of justice, the prosecution has the burden of building a case against the defendant. The prosecution must build that case beyond a reasonable doubt. The facts available to the prosecution are the bricks with which the prosecutor will attempt to build that case. At the extreme, if we can successfully exclude all of the facts, there will be no evidence for the jury. It follows that the more facts we can successfully keep out of the case, the less bricks available to the prosecution from which to build the case against our client.

A wise advocacy principle is to never underestimate your opponent. Along this line it would behoove you to assume that if the prosecutor wants a piece of evidence in a case, it is because it is helpful to his plan to win a conviction against your client. Assume he is competent. Assume he knows what he is doing. Assume that fact is good for his case, and therefore bad for your client. Therefore, you do not want that fact in the case. Resist the temptation to take a fact the prosecution will use, and make it a part of your defense before you have considered whether you can have that fact excluded from the trial and how the case will look without it. Far too often defense attorneys learn facts in a case and begin thinking of how those facts will fit into a defense theory without considering whether the fact can be excluded from the trial. This puts the cart

before the horse. We must train ourselves to view every fact critically. We must consider whether that fact is necessarily going to be a part of the case before we decide to embrace it[1].

The prosecutor obviously knows his case, and how he plans to build it, much better than you do. If you accept the premise prosecutors tend to do things for a reason, i.e. to help convict your client, then it follows that any fact the prosecution wishes to use to build its case against your client is one we should try to keep out of evidence. Even if you are unwilling to give the prosecutor that much credit, limiting the facts at his disposal to use against your client can only be beneficial. This defines a method of practice coined by Jonathan Stern as "evidence blocking." Put plainly, evidence blocking is the practice of working to keep assertions about facts of the world out of the case. This exercise is one that forces us to consider the many ways facts can be kept out of evidence, and therefore made to be irrelevant to the facts of the case, and the derivative benefits of litigating these issues.

It is helpful to think of evidence blocking in four stages: 1) suppression/discovery violations; 2) witness problems; 3) evidence problems; and presentation problems.

A. Suppression / Discovery and Other Statutory Violations

The first stage we must think about when seeking to block evidence includes violations by the prosecution team of the Constitution, statutory authority, or court rule. We must think creatively about how evidence gathered by the State may be the fruit of a Constitutional violation. Generally, in this regard, we consider violations of the Fourth, Fifth, and Sixth Amendments. We look to any physical evidence seized by the government, statements allegedly made by your client, and identifications that arguably resulted from a government-sponsored identification procedure. We consider theories under which this evidence was obtained illegally and we move to suppress that evidence. We also must look to any violations of a statute or rule that might arguably warrant exclusion of evidence as a sanction. A prime example of this is a motion to exclude evidence based on a violation of the law of discovery. How we litigate these issues will define how much of the evidence at issue is admitted

[1] Of course, after going through this exercise, there will be facts that you have concluded are going to be part of the "facts of the case." These are "facts beyond control." At that point it is wise to consider how your case theory might embrace these facts beyond control, thereby neutralizing their damaging impact. However, this paper is meant to serve as a caution to the defense attorney to not engage in the exercise of developing a case theory around seemingly bad facts until she has thoroughly considered whether she can exclude those facts from the case.

at trial and how it can be used. We must use our litigation strategy to define how these issues are discussed.

B. Witness Problems

A second stage of evidence blocking involves identifying problems with government witnesses. This includes considering the witness' basis of knowledge. A witness may not testify regarding facts about which she does not have personal knowledge. It also includes thinking about any privileges the witness may have. Be thoughtful about whether a witness has a Fifth Amendment privilege. Consider marital privilege, attorney/client privilege, and any other privilege that could present an obstacle to the government's ability to introduce testimony it desires in its case. Another example of a witness problem is incompetency. We should always be on the lookout for information that arguable renders a witness incompetent to testify and move to have that witness excluded from testifying at trial. These are some examples of witness problems.

C. Evidence Problems

While witness problems relate to problems with the witness herself, we must also consider a third stage of evidence blocking: problems with the evidence itself. Even with a witness who has no problems such as those described above, there may be problems with the evidence the government wishes for them wish to present. Perhaps the information the witness has is barred because it is hearsay. Consider whether the evidence is arguably irrelevant. Think about whether the evidence is substantially more prejudicial than probative. These are all examples of problems with the evidence.

D. Presentation Problems

A final stage of evidence blocking involves a problem with the method of presentation of the evidence. Maybe the government is unable to complete the necessary chain of custody. The prosecutor may be missing a witness who is critical to completing the chain of custody. Maybe the prosecutor has never been challenged with respect to chain of custody and is unaware of who he needs to get the evidence admitted. By being on your feet you may successfully exclude the evidence the prosecutor needs to make its case against your client. Another example of a presentation problem is where the prosecutor is unable to lay a proper foundation for admission of some evidence. A third example is a prosecutor who is unable to ask a proper question (for example, leading on

direct). These are all examples of problems the prosecutor could have in getting evidence before the jury if you are paying attention and making the appropriate objections.

IV. How Do You Raise An Issue

Once you have decided that there is evidence that should not be admitted at your trial you must consider the best method for bringing the issue to the Court's attention. You essentially have three options: 1) file a pretrial written Motion in Limine, 2) raise the issue orally as a preliminary matter, or 3) lodge a contemporaneous objection. There are pros and cons to each of these methods.

Some motions must be filed in writing prior to trial, such as motions to suppress. Each jurisdiction is different on the requirement regarding what must be filed pre-trial and the timing of the filing[2]. For any motions that must be filed pretrial, you should always file pretrial motions whenever possible, for reasons stated below. However, many evidentiary issues may be raised without filing a motion. Objections to evidence on grounds that it is hearsay, irrelevant, substantially more prejudicial than probative, or any number of evidentiary grounds, are routinely made contemporaneously during trial. Certainly, should you anticipate an evidentiary issue in advance of trial you may raise it with the court. This may be done orally as a preliminary matter or in writing as a motion in limine.

What are the pros and cons of the different methods of raising an objection? Let's first consider a written, pretrial motion in limine. There are several advantages to filing a pretrial motion in limine to exclude evidence on evidentiary grounds. One is that it gives you a chance to educate the judge on the issue. Judges, like all of us, often do not know all of the law governing a particular issue off the top of their heads. If forced to rule on an issue without giving it careful thought, most judges rely on instinct. It is the rare judge whose instinct it is to help the criminal defendant. If the judge is going to rely on one of the parties to guide her, it is more often than not the prosecutor[3]. Therefore, you are often better often having had the chance to educate the judge than to rely on her ruling in your favor on a contemporaneous objection when the answer is not obvious.

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[2] In Georgia, pursuant to O.C.G.A. 17-7-110, all pretrial motions, demurrers, and special pleas must be filed within ten days of the date of arraignment unless the trial court grants additional time pursuant to a motion.

[3] To the extent that you have previous experience with that judge and you have developed a reputation for being thorough, smart, and honest, you may be the person upon whom the judge relies. If that is the case with the judge before whom you will be in trial, that may factor into your decision about whether to object contemporaneously.

A second reason for filing a written motion pretrial is that you are entitled to a response from the prosecutor. This benefits you in several ways. First, every time you force the prosecution to commit something to writing, you learn a little more about their case. Filing motions are a great way to get additional discovery by receiving a response. Second, whenever the prosecutor commits something to writing, he is locking himself into some version of the facts. If he characterizes a witnesses testimony in a particular way and that witness ends up testifying differently, you have an issue to litigate. Presumably, the prosecutor accurately stated in his response to your motion what the witness told him or his agent. You now are entitled to call the prosecutor, or his agent, to impeach the witness. Maybe the response is an admission of the party opponent that can be introduced at trial. The bottom line is that there is now an issue where there would not have been one had you not forced the response to your motion[4].

A third reason for filing a written motion is that there is always the chance that the prosecutor will fail to respond, despite being required to by law or ordered to by the court. Whenever the prosecutor fails to respond to a written motion you are in a position to ask for sanctions. Sanctions may be for the court to treat your motion as conceded. They might be exclusion of some evidence. Perhaps you may get an instruction in some circumstances. Be creative in the sanctions you request.

A fourth reason is that when you file a motion, you get a hearing. Pretrial hearings are great things. They give us a further preview of the prosecutions case, commit the prosecution to the evidence presented at the hearing, and may result in sanctions.

A fifth reason for filing motions whenever you can is that it increases the size of your client's court file. A thick court file can be beneficial to your client in several ways. The shear size of a large court file is intimidating to judges and prosecutors. Judges like to move their dockets. Thick case files tend to be trials that take a long time to complete. Judges will be less likely to force you to trial in a case with a thick case jacket. Similarly, prosecutors often have to make choices about which cases to offer better pleas in or to dismiss outright. The more of a hassle it is to deal with a case, the greater the chance the prosecutor will offer a good plea to your client or dismiss the case outright.

A sixth reason is that by taking the time to research and write the motion, you are better preparing yourself to deal with the issue and to consider how it impacts your trial strategy.

[4] One of Jonathan Stern's cardinal rules that I have taken to heart is that you always want to be litigating something other than guilt or innocence.

A final reason for filing pretrial motions even when not required is that you appear to be honest and concerned with everyone getting the result right. By appearing to be on the up and up you can gain points with the court that will spill over to other aspects of the trial.

What are the downsides to filing a motion in advance of trial. One is certainly that you give the prosecution a heads up to an issue you seek to raise. To the extent that you identify a problem with the government's case, they may be able to fix it with advance notice. Certainly this is an important consideration that must be factored into your decision about whether to raise an evidentiary issue in writing, pretrial. A second issue, which concerns me much less, is that it allows the prosecutor to do the research he needs to do to address the legal issue you raise. Certainly by filing a pretrial motion you allow everyone to be more prepared. However, if the issue is an important one, and the judge's ruling depends on the prosecutor having a chance to do some research, most judges will give the prosecutor time to research the question before ruling whenever you raise it. To the extent this holds up the trial, there is always the risk the judge will fault you for not raising the issue earlier.

The third option, raising the issue orally as a preliminary matter, is a compromise between the other two alternatives. Obviously, it has some of the pros and cons of the other alternatives. How you handle any given issue must be the product of careful thought and analysis.

V. Conclusion

In conclusion, as defense attorneys we must take advantage of any tools at our disposal to alter the landscape of the trial in our client's favor. In order to do this we must understand and appreciate the difference between facts in the world and facts in the case. By undergoing a rigorous analysis of the facts that are potentially part of the case against our client, we may be able to keep some of those facts out of evidence. This exercise has the benefit of keeping from the prosecutor some of the blocks he hoped to use to build the case against you client. It alters the facts of the case in a way the prosecutor may be unable to deal with. And by litigating these issues we stand to derive residual benefits that will shape the outcome of the trial.

If You Build It, They Will Come: Creating and Utilizing a Meaningful Theory of Defense

by Stephen P. Lindsay

Stephen P. Lindsay is a senior partner in the law firm of Cloninger, Lindsay, Hensley & Searson, P.L.L.C, in Asheville. His firm specializes in all types of litigation. Lindsay focuses primarily on criminal defense in both state and federal courts. He graduated from Guilford College with a BS in Administration of Justice and earned his JD from the University of North Carolina School of Law. A faculty member of the National Criminal Defense College in Macon, Georgia, Lindsay dedicates between four and six weeks per year teaching and lecturing for various public defender organizations and criminal defense bar associations both within and outside of the United States.

So the file hits your desk. Before you open to the first page you hear the shrill noise of not just a single dog, but a pack of dogs. Wild dogs. Nipping at your pride. You think to yourself, "Why me? Why do I always get the dog cases? It must be fate." You calmly place the file on top of the stack of ever-growing canine files. Your reach for your cup of coffee and seriously consider upping your membership in the S.P.C.A. to "Angel" status. Just as you think a change in profession might be in order, your coworker steps in the door, new file in hand, lets out a piercing howl and says, "This one is the dog of all dogs. The mother of all dogs!" Alas. You are not alone.

Dog files bark because there does not appear to be any reasonable way to mount a successful defense. Put another way, winning the case is about as likely as a crowd of people coming to watch a baseball game at a ballpark in a cornfield in the middle of Iowa. According to the movie, *Field of Dreams,* "If you build it, they will come . . ." And they came. And they watched. And they enjoyed. Truth be known, they would come again, if invited —even if they were not invited.

Every dog case is like a field of dreams: nothing to lose and everything to gain. Believe it or not, out of each dog case can rise a meaningful, believable, and solid defense—a defense that can win. But as Kevin Costner's wife said in the movie, "[I]f all of these people are going to come, we have a lot of work to do." The key to building the ballpark is in designing a theory of defense supported by one or more meaningful themes.

What Is a Theory and Why Do I Need One?

Having listened over the last 20 years to some of the finest criminal defense attorneys lecture on theories and themes, it has become clear to me that there exists great confusion as to what constitutes a theory and how it differs from supporting themes. The words "theory" and "theme" are often used interchangeably. However, they are very different concepts. So what is a theory? Here are a few definitions:

- *That combination of facts (beyond change) and law which in a common sense and emotional way leads a jury to conclude a fellow citizen is wrongfully accused.*—Tony Natale
- *One central theory that organizes all facts, reasons, arguments and furnishes the basic position from which one determines every action in the trial.* —Mario Conte
- *A paragraph of one to three sentences which summarizes the facts, emotions and legal basis for the citizen accused's acquittal or conviction on a lesser charge while telling the defense's story of innocense or reduces culpability.* —Vince Aprile

Common Thread Theory Components

Although helpful, these definitions, without closer inspection, tend to leave the reader thinking "Huh?" Rather than try to decipher these various definitions, it is more helpful to compare them to find commonality. The common thread within these definitions is that each requires a theory of defense to have the same three essential elements:

1. a factual component (fact-crunching/ brainstorming);
2. a legal component (genre); and
3. an emotional component (themes/ archetypes).

In order to fully understand and appreciate how to develop each of these elements in the quest for a solid theory of defense, it

is helpful to have a set of facts with which to work. These facts can then be used to create possible theories of defense. The Kentucky Department of Public Advocacy developed the following fact problem:

State v. Barry Rock, 05 CRS 10621 (Buncombe County)

Betty Gooden is a "pretty, very intelligent young lady" as described by the social worker investigating her case. Last spring, Betty went to visit her school guidance counselor, introducing herself and commenting that she knew Ann Haines (a girl that the counselor had been working with due to a history of abuse by her uncle, and who had recently moved to a foster home in another school district).

Betty said that things were not going well at home. She said that her stepdad, Barry Rock, was very strict and would make her go to bed without dinner. Her mother would allow her and her brother (age 7) to play outside, but when Barry got home, he would send them to bed. She also stated that she got into trouble for bringing a boy home. Barry yelled at her for having sex with boys in their trailer. This morning, she said, Barry came to school and told her teacher that he caught her cheating—copying someone's homework. She denied having sex with the boy or cheating. She was very upset that she wasn't allowed to be a normal teenager like all her friends.

The counselor asked her whether Barry ever touched her in an uncomfortable way. She became very uncomfortable and began to cry. The counselor let her return to class, then met her again later in the day with a police officer present. At that time, Betty stated that since she was 10, Barry had told her if she did certain things, he would let her open presents. She explained how this led to Barry coming into her room in the middle of the night to do things with her. She stated that she would try to be loud enough to wake up her mother in the room next door in the small trailer, but her mother would never come in. Her mother is mentally retarded, and before marrying Barry, had quite a bit of contact with Social Services due to her weak parenting skills. She stated that this had been going on more and more frequently in the last month and estimated it had happened 10 times.

Betty is an A/B student who showed no sign of academic problems. After reporting the abuse, she has been placed in a foster home with her friend Ann. She has also attended extensive counseling sessions to help her cope. Medical exams show that she has been sexually active.

Kim Gooden is Betty's 35-year-old mentally retarded mother. She is a "very meek and introverted person" who is "very soft spoken and will not make eye contact." She told the investigator she had no idea Barry was doing this to Betty. She said Barry made frequent trips to the bathroom and had a number of stomach problems that caused diarrhea. She said that Betty always wanted to go places with Barry and would rather stay home with Barry than go to the store with her. She said that she thought Betty was having sex with a neighbor boy, and she was grounded for it. She said that Betty always complains that she doesn't have normal parents and can't do the things her friends do. She is very confused about why Betty was taken away and why Barry has to live in jail now. An investigation of the trailer revealed panties with semen that matches Barry. Betty says those are her panties. Kim says that Betty and her are the same size and share all of their clothes.

Barry Rock is a 39-year-old mentally retarded man who has been married to Kim for five years. They live together in a small trailer making do with the Social Security checks that they both get due to mental retardation.

Barry now adamantly denies that he ever had sex and says that Betty is just making this up because he figured out she was having sex with the neighbor boy. After Betty's report to the counselor, Barry was interviewed for six hours by a detective and local police officer. In this videotaped statement, Barry is very distant, not making eye contact, and answering with one or two words to each question. Throughout the tape, the officer reminds him just to say what they talked about before they turned the tape on. Barry does answer "yes" when asked if he had sex with Betty and "yes" to other leading questions based on Betty's story. At the end of the interview, Barry begins rambling that it was Betty that wanted sex with him, and he knew that it was wrong, but he did it anyway.

Barry has been tested with IQs of 55, 57, and 59 over the last three years. Following a competency hearing, the trial court found Barry to be competent to go to trial.

The Factual Component

The factual component of the theory of defense comes from brainstorming the facts. More recently referred to as "fact-busting," brainstorming is the essential process of setting forth facts that appear in discovery and arise through investigation.

It is critical to understand that facts are nothing more—and nothing less—than just facts during brainstorming. Each fact should be written down individually and without any spin. Non-judgmental recitation of the facts is the key. Do not draw conclusions as to what a fact or facts might mean. And do not make the common mistake of attributing the meaning to the facts that is given to them by the prosecution or its investigators. It is too early in the process to give value or meaning to any particular fact. At this point, the facts are simply the facts. As we work through the other steps of creating a theory of defense, we will begin to attribute meaning to the various facts.

Judgmental Facts (WRONG)	Non-Judgmental Facts (RIGHT)
Barry was retarded	Barry had an IQ of 70
Betty hated Barry	Barry went to Betty's school, went to her classroom, confronted her about lying, accused her of sexual misconduct, talked with her about cheating, dealt with her in front of her friends
Confession was coerced	Several officers questioned Barry, Barry was not free to leave the station, Barry had no family to call, questioning lasted six hours

The Legal Component

Now that the facts have been developed in a neutral, non-judgmental way, it is time to move to the second component of the theory of defense: the legal component. Experience, as well as basic notions of persuasion, reveal that stark statements such as "self-defense," "alibi," "reasonable doubt," and similar catch-phrases, although somewhat meaningful to lawyers, fail to accurately and completely convey to jurors the essence of the defense. "Alibi" is usually interpreted by jurors as "He did it, but he has some friends that will lie about where he was." "Reasonable doubt" is often interpreted as, "He did it, but they can't prove it."

Thus, the legal component must be more substantive and understandable in order to accomplish the goal of having a meaningful theory of defense. Look at Hollywood and the cinema; thousands of movies have been made that have as their focus some type of alleged crime or criminal behavior. According to Cathy Kelly, training director for the Missouri Pubic Defender's Office, when these types of movies are compared, the plots, in relation to the accused, tend to fall into one of the following genres:

1. It never happened (mistake, set-up);
2. It happened, but I didn't do it (mistaken identification, alibi, set-up, etc.);
3. It happened, I did it, but it wasn't a crime (self-defense, accident, claim or right, etc.);
4. It happened, I did it, it was a crime, but it wasn't this crime (lesser included offense);
5. It happened, I did it, it was the crime charged, but I'm not responsible (insanity, diminished capacity);
6. It happened, I did it, it was the crime charged, I am responsible, so what? (jury nullification).

The six genres are presented in this particular order for a reason. As you move down the list, the difficulty of persuading the jurors that the defendant should prevail increases. It is easier to defend a case based upon the legal genre "it never happened" (mistake, set-up) than it is on "the defendant is not responsible" (insanity).

Using the facts of the Barry Rock example as developed through non-judgmental brainstorming, try to determine which genre fits best. Occasionally, facts will fit into two or three genres. It is important to settle on one genre, and it should usually be the one closest to the top of the list; this decreases the level of defense difficulty. The Rock case fits nicely into the first genre (it never happened), but could also fit into the second category (it happened, but I didn't do it). The first genre should be the one selected.

But be warned. Selecting the genre is not the end of the process. The genre is only a bare bones skeleton. The genre is a legal theory, not your theory of defense. It is just the second element of the theory of defense, and there is more to come. Where most attorneys fail when developing a theory of defense is in stopping once the legal component (genre) is selected. As will be seen, until the emotional component is developed and incorporated, the theory of defense is incomplete.

It is now time to take your work product for a test drive. Assume that you are the editor for your local newspaper. You have the power and authority to write a headline about this case. Your goal is to write it from the perspective of the defense, being true to the facts as developed through brainstorming, and incorporating the legal genre that has been selected. An example might be:

Rock Wrongfully Tossed from Home by Troubled Stepdaughter

Word choice can modify, or entirely change, the thrust of the headline. Consider the headline with the following possible changes:

Rock →	***Barry, Innocent Man, Mentally Challenged Man***
Wrongfully Tossed →	***Removed, Ejected, Sent Packing, Calmly Asked To Leave***
Troubled →	***Vindictive, Wicked, Confused***
Stepdaughter →	***Brat, Tease, Teen, Houseguest, Manipulator***

Notice that the focus of this headline is on Barry Rock, the defendant. It is important to decide whether the headline could be more powerful if the focus were on someone or something other than the defendant. Headlines do not have to focus on the defendant in order for the eventual theory of defense to be successful. The focus does not even have to be on an animate object. Consider the following possible headline examples:

Troubled Teen Fabricates Story for Freedom

Overworked Guidance Counselor Unknowingly Fuels False Accusations

Marriage Destroyed When Mother Forced to Choose Between Husband and Troubled Daughter

Underappreciated Detective Tosses Rock at Superiors

Each of these headline examples can become a solid theory of defense and lead to a successful outcome for the accused.

The Emotional Component

The last element of a theory of defense is the emotional component. The factual element or the legal element, standing alone, are seldom capable of persuading jurors to side with the defense. It is the emotional component of the theory that brings life, viability, and believability to the facts and the law. The emotional component is generated from two sources: archetypes and themes.

Archetypes, as used herein, are basic, fundamental, corollaries of life that transcend age, ethnicity, gender and sex. They are truths that virtually all people in virtually all walks of life can agree upon. For example, few would disagree that when one's child is in danger, one protects the child at all costs. Thus, the archetype demonstrated would be a parent's love and dedication to his or her child. Other archetypes include love, hate, betrayal, despair, poverty, hunger, dishonesty and anger. Most cases lend themselves to one or more archetypes that can provide a source for emotion to drive the theory of defense. Archetypes in the Barry Rock case include:

- The difficulties of dealing with a stepchild
- Children will lie to gain a perceived advantage
- Maternity/paternity is more powerful than marriage
- Teenagers can be difficult to parent

Not only do these archetypes fit nicely into the facts of the Barry Rock case, each serves as a primary category of inquiry during jury selection.

In addition to providing emotion through archetypes, attorneys should use primary and secondary themes. A primary theme is a word, phrase, or simple sentence that captures the controlling or dominant emotion of the theory of defense. The theme must be brief and easily remembered by the jurors.

For instance, a primary theme developed in the theory of defense and advanced during the trial of the O.J. Simpson case was, "If it doesn't fit, you must acquit." Other examples of primary themes include:

- One for all and all for one
- Looking for love in all the wrong places
- Am I my brother's keeper?
- Stand by your man (or woman)
- Wrong place, wrong time, wrong person
- When you play with fire, you're going to get burned

Although originality can be successful, it is not necessary to redesign the wheel. Music, especially country/western music, is a wonderful resource for finding themes. Consider the following lines taken directly from the songbooks of Nashville (and assembled by Dale Cobb, an incredible criminal defense attorney from Charleston, South Carolina):

Top 10 Country/Western Lines (Themes?)

10. Get your tongue outta my mouth 'cause I'm kissin' you goodbye.
9. Her teeth was stained, but her heart was pure.
8. I bought a car from the guy who stole my girl, but it don't run so we're even.
7. I still miss you, baby, but my aim's gettin' better.
6. I wouldn't take her to a dog fight 'cause I'm afraid she'd win.
5. If I can't be number one in your life, then number two on you.
4. If I had shot you when I wanted to, I'd be out by now.
3. My wife ran off with my best friend, and I sure do miss him.
2. She got the ring and I got the finger.
1. She's actin' single and I'm drinkin' doubles.

Incorporating secondary themes can often strengthen primary themes. A secondary theme is a word or phrase used to identify, describe, or label an aspect of the case. Here are some examples: a person—"never his fault"; an action—"acting as a robot"; an attitude—"stung with lust"; an approach—"no stone unturned"; an omission—"not a rocket scientist"; a condition—"too drunk to fish."

There are many possible themes that could be used in the Barry Rock case. For example, "blood is thicker than water"; "Bitter Betty comes a calling"; "to the detectives, interrogating Barry should have been like shooting fish in a barrel"; "sex abuse is a serious problem in this country—in this case, it was just an answer"; "the extent to which a person will lie in order to feel accepted knows no bounds."

Creating the Theory of Defense Paragraph

Using the headline, the archetype(s) identified, and the theme(s) developed, it is time to write the "Theory of Defense Paragraph." Although there is no magical formula for structuring the paragraph, the following template can be useful:

Theory of Defense Paragraph
- Open with a theme
- Introduce protagonist/antagonist
- Introduce antagonist/protagonist
- Describe conflict
- Set forth desired resolution
- End with theme

Note that the protagonist/antagonist does not have to be an animate object.

The following examples of theory of defense paragraphs in the Barry Rock case are by no means first drafts. Rather, they have been modified and adjusted many times to get them to this level. They are not perfect, and they can be improved upon. However, they serve as good examples of what is meant by a solid, valid, and useful theory of defense.

Theory of Defense Paragraph One

The extent to which even good people will tell a lie in order to be accepted by others knows no limits. "Barry, if you just tell us you did it, this will be over and you can go home. It will be easier on everyone." Barry Rock is a very simple man. Not because of free choice, but because he was born mentally challenged. The word of choice at that time was "retarded." Despite these limitations, Barry met Kim Gooden, who was also mentally challenged, and the two got married. Betty, Kim's daughter, was young at that time. With the limited funds from Social Security Disability checks, Barry and Kim fed and clothed Betty, made sure she had a safe home in which to live, and provided for her many needs. Within a few years, Betty became a teenager, and with that came the difficulties all parents experience with teenagers: not wanting to do homework, cheating to get better grades, wanting to stay out too late, experimenting with sex. Mentally challenged, and only a stepparent, Barry tried to set some rules—rules Betty didn't want to obey. The lie that Betty told stunned him. Kim's trust in her daughter's word, despite Barry's denials, hurt him even more. Blood must be thicker

than water. All Barry wanted was for his family to be happy like it had been in years gone by. "Everything will be okay, Barry. Just say you did it and you can get out of here. It will be easier for everyone if you just admit it."

Theory of Defense Paragraph Two

The extent to which even good people will tell a lie in order to be accepted by others knows no limits. Full of despair and all alone, confused and troubled, Betty Gooden walked into the guidance counselor's office at her school. Betty was at what she believed to be the end of her rope. Her mother and stepfather were mentally retarded. She was ashamed to bring her friends to her house. Her parents couldn't even help her with homework. She couldn't go out as late as she wanted. Her stepfather punished her for trying to get ahead by cheating. He even came to her school and made a fool of himself. No—of her!!! She couldn't even have her boyfriend over and mess around with him without getting punished. Life would be so much simpler if her stepfather were gone. As she waited in the guidance counselor's office, *Bitter Betty* decided there was no other option—just tell a simple, not-so-little lie. *Sex abuse is a serious problem in this country.* In this case, it was not a problem at all—because it never happened. *Sex abuse was Betty's answer.*

The italicized portions in the above examples denote primary themes and secondary themes—the parts of the emotional component of the theory of defense. Attorneys can strengthen the emotional component by describing the case in ways that embrace an archetype or archetypes—desperation in the first example, and shame towards parents in the second. It is also important to note that even though each of these theories are strong and valid, the focus of each is from a different perspective. The first theory focuses on Barry, and the second on Betty.

The primary purpose of a theory of defense is to guide the lawyer in every action taken during trial. The theory will make trial preparation much easier. It will dictate how to select the jury, what to include in the opening, how to handle each witness on cross, how to decide which witnesses are necessary to call in the defense case, and what to include in and how to deliver the closing argument. The theory of defense might never be shared with the jurors word for word; but the essence of the theory will be delivered through each witness, so long as the attorney remains dedicated and devoted to the theory.

In the end, whether you choose to call them dog cases, or to view them, as I suggest you should, as fields of dreams, such cases are opportunities to build baseball fields in the middle of cornfields in the middle of Iowa. If you build them with a meaningful theory of defense, and if you believe in what you have created, the people will come. They will watch. They will listen. They will believe. "If you build it, they will come . . ." ▪

CALCULATING PRIOR DELINQUENCY HISTORY LEVEL

DISPOSITION CHART

OFFENSE	DELINQUENCY HISTORY		
	LOW	MEDIUM	HIGH
VIOLENT	Level 2 or 3	Level 3	Level 3
SERIOUS	Level 1 or 2	Level 2	Level 2 or 3
MINOR	Level 1	Level 1 or 2	Level 2

OFFENSE CLASSIFICATION:

1. Violent: adjudication of a Class A through E felony
2. Serious: adjudication of a Class F through I felony or Class A1 misdemeanor
3. Minor: adjudication of a Class 1 through 3 misdemeanor

POINT ASSIGNMENT:

1. Prior adjudication of a Class A through E felony – 4 points
2. Prior adjudication of a Class F through I felony or Class A1 misdemeanor – 2 points
3. Prior adjudication of a Class 1 through 3 misdemeanor – 1 point
4. If the juvenile was on probation at the time of the offense – 2 points

DELINQUENCY HISTORY LEVELS:

1. Low: no more than 1 point
2. Medium: at least 2 but not more than 3 points
3. High: 4 or more points

*A juvenile who has been adjudicated for a minor offense may be committed to a Level 3 disposition if the juvenile has been adjudicated for 4 or more separate prior offenses.

*If the juvenile was adjudicated for more than one offense in a single session of district court, only the adjudication for the offense with the highest point total is used.

*If a juvenile is adjudicated for more than one offense during a session of juvenile court, the court must consolidate the offenses for disposition and impose a single disposition for the class of offense and delinquency history level of the most serious offense.

Delinquency History - Point Assignment

CLASS	POINTS
A through E felony	4
F through I felony or Class A1 misdemeanor	2
Class 1, 2, or 3 misdemeanor	1
On probation	2

SCORING DELINQUENCY HISTORY			
NUMBER	**TYPE**	**FACTORS**	**POINTS**
	Prior Felony Class A through E Adjudication	X4	
	Prior Felony Class F through I or Misdemeanor Class A1 Adjudication	X2	
	Prior Misdemeanor Class 1 through 3 Adjudication	X1	
		SUBTOTAL	
If the offense was committed while on probation		+2	
		TOTAL	

DELINQUENCY HISTORY LEVEL	
POINTS	**LEVEL**
0-1	Low
2-3	Medium
4 +	High

QUESTIONS TO ASK YOUR CLIENT REGARDING PAST INVOLVEMENT IN JUVENILE COURT

1. Were you ever arrested between the ages of 6 and 16?

2. Were you told what you were you were arrested for?

3. Were you charged with a crime? If so, what crimes were you first charged for?

4. Were you placed in a detention center as a result of the charge?

5. Were you brought to court?

6. Did you get an attorney? Do you remember the attorney's name?

7. What was the outcome of your case:
    - Dismissal?
    - Plea?
    - Trial?

8. For what crimes were you adjudicated delinquent?

9. Were you placed on probation?

10. What were some conditions of your probation?
    - Community service?
    - Restitution?
    - Mental heath treatment/counseling?
    - Out-of-home placement:
        - Group home?
        - DSS custody?
        - Therapeutic foster home?
        - Other relatives?
    - Detention?
    - Youth Development Center (ie training school)?

11. How long were you on probation?

12. Did you complete probation successfully? If not, what happened?

13. If you were sent to training school:
    - How long were you there?
    - Which training school were you in?
    - What programs/treatment/training did you receive there?

14. When were you finished with probation and/or training school?

15. Were you in the juvenile system more than one time?

PRIOR RECORD			
OFFENSE	**DATE OF ADJ.**	**DISPOSITION**	**CLASS**

ETHICS

ETHICS AND THE ROLE OF COUNSEL IN DELINQUENCY PROCEEDINGS
UNC School of Government 2016 Intensive Juvenile Defender Training

Anne M. Corbin, M.A., M.S., J.D., Ph.D.
March 11, 2016

"Role Conflict Among Juvenile Defenders in an Expressed Interests Jurisdiction: An empirical study"

Abstract

The defense attorney role in juvenile courts has been the source of considerable debate since juveniles' right to counsel was first established in *In re Gault*, 1967. The legal literature refers to the existence of role confusion and conflict for juvenile defenders. Role conflict is considered the negative result of conflicting expectations of a job incumbent in his or her role. It has frequently been observed that juvenile defenders experience confusion about their role, their role tends to be constrained by other courtroom actors, and consequently, they tend to be marginal players in the courtroom. There has been very little focused and systematic investigation into how juvenile defenders view their role. There has also been little research into the extent to which juvenile defenders experience role conflict, how they respond to it, and how it affects the quality of their representation.

The present study examined the role of counsel in the juvenile courts more deeply than any prior empirical analysis. Its findings demonstrate the presence of role confusion even among juvenile defenders in a jurisdiction that clearly defines their role. Findings also support the conclusion that role conflict is very much a part of the juvenile defender experience in the examined jurisdictions. Analysis revealed contextual and other factors that contribute to role conflict, and identified role conflict's impact as well as defender coping responses. Understanding the nature, extent, and impact of the role conflict experienced by juvenile defenders has important implications for juvenile justice system stakeholders, processes, and policy.

The Problem

- Juvenile defenders experience role conflict as a result of conflicting role expectations from different authorities (i.e., ABA Model Rules require *expressed* interests advocacy, while juvenile court culture expects *best* interests advocacy).
- Role Conflict is "[a] situation that results when role expectations are inconsistent, as when a supervisor sends employees mixed messages about their roles," (Levy, 2010: 292).
- There is a strong correlation between role conflict and job burnout, chiefly the emotional exhaustion and depersonalization dimensions (Jackson et al., 1987). There is a strong relationship shown between emotional exhaustion & subsequent work performance (Wright & Bonett, 1997). Role conflict can lead to "lower productivity" (Van Sell, et al., 1981, p. 66).

Selected Study Findings

- All participants reported experiencing some internal role conflict (same role incumbent and role but conflict values within the role incumbent) and inter-sender role conflict (different role senders with conflicting role expectations). A role sender is anyone who exhibits an expectation of the role in question. Many referred to role conflict as "pushback" from other courtroom stakeholders (e.g., judges, parents). Role conflict was reported as most often experienced from the following in decreasing order of prevalence: parents, clients, the disposition stage, the system's push for efficiency, prosecutors, court counselors, and judges.

- Participants cited others' lack of understanding or respect for the juvenile defender role as responsible for the role conflict they faced. This is particularly true for other juvenile court functionaries (i.e., judges, prosecutors, court counselors, and even other defenders).

- Departures from the expressed interests advocate role were largely viewed as unjustifiable unless the client's condition required it (e.g., client lacked capacity or had certain special needs).

- The disposition stage of the process appeared to be a great source of role conflict for participants, despite numerous guidelines/standards indicating that the advocate role must focus on the client's expressed interests at *all* stages. This was the case even though most (14/22 or 63.6%) believed role departure at the disposition stage is *not* justifiable. Interestingly, the other 8 (36.4%) viewed role departures at disposition stage as *justifiable*. Among other things, there appeared to be a sense of frustration over having less information about the client's life and circumstances than the court counselors whose recommendations were often viewed as "rubberstamped" by the judge.

- Most participants reported experiencing tension/stress from their role conflict experiences. It also cost them time but this particular finding is problematic because the relevant question was difficult to answer. While some participants believed the role conflict had a positive impact on their professional development, most believed it did, or could, affect the quality of their work and case outcomes.

- Participants coped with role conflict by using their persuasion skills to manage their clients or other juvenile court stakeholders, qualifying their language to the court, excluding parents from client meetings, affirming their role to the source of role conflict, building their reputations and experience, redirecting their attention (internal role conflict), creating work-life balance, and building a support network.

- Consequences of role conflict coping strategies centered around concern over lost opportunities for clients and avoiding upsetting judges.