

OUR LAST BEST CHANCE

Why Adolescence Begins Earlier,
Ends Later, and Matters More Than Ever

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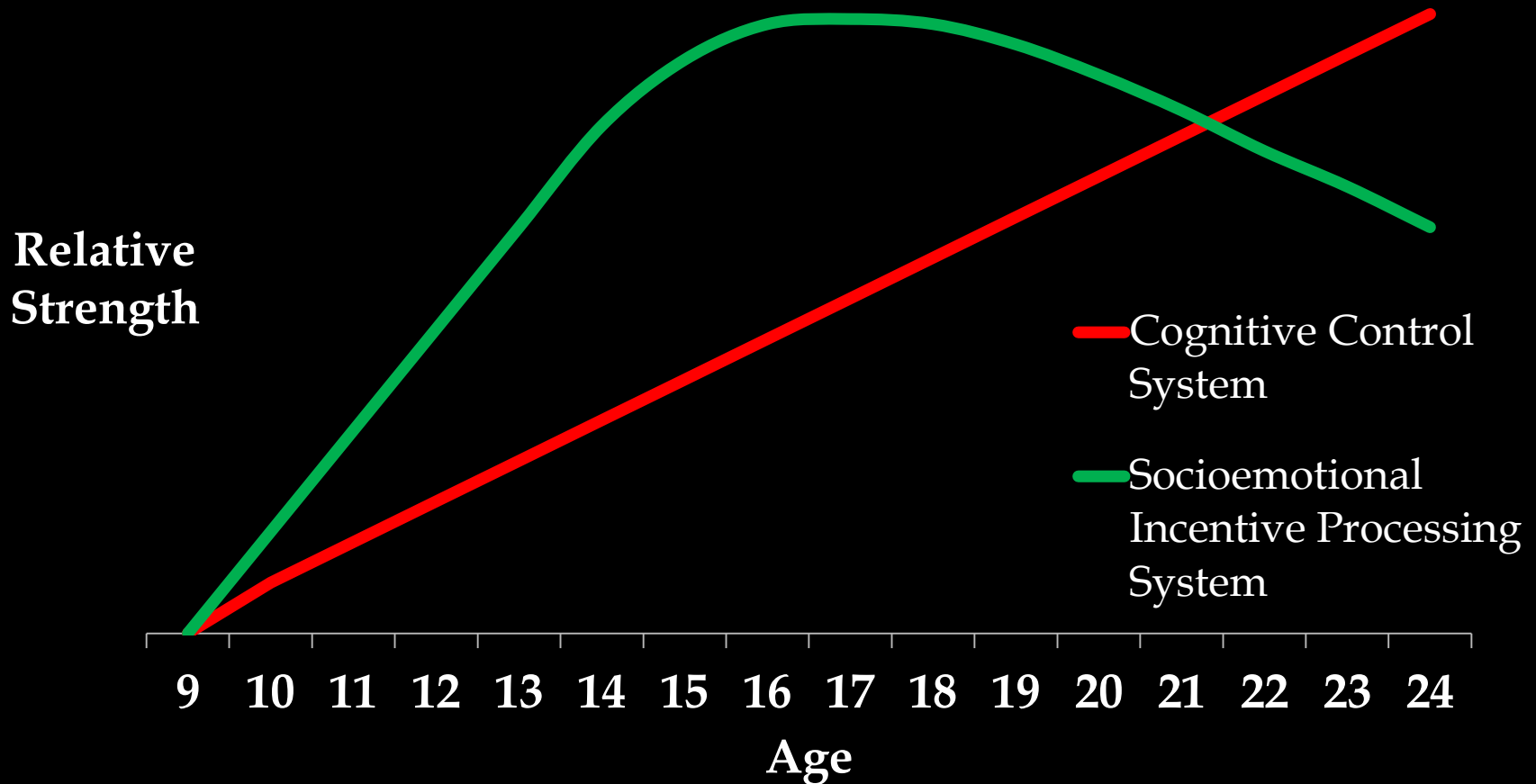
Overview

- ▣ Lessons from Adolescent Brain Science
- ▣ The Longest Decade
- ▣ Winners and Losers
- ▣ Cultivating Self-Regulation
- ▣ Implications and Recommendations

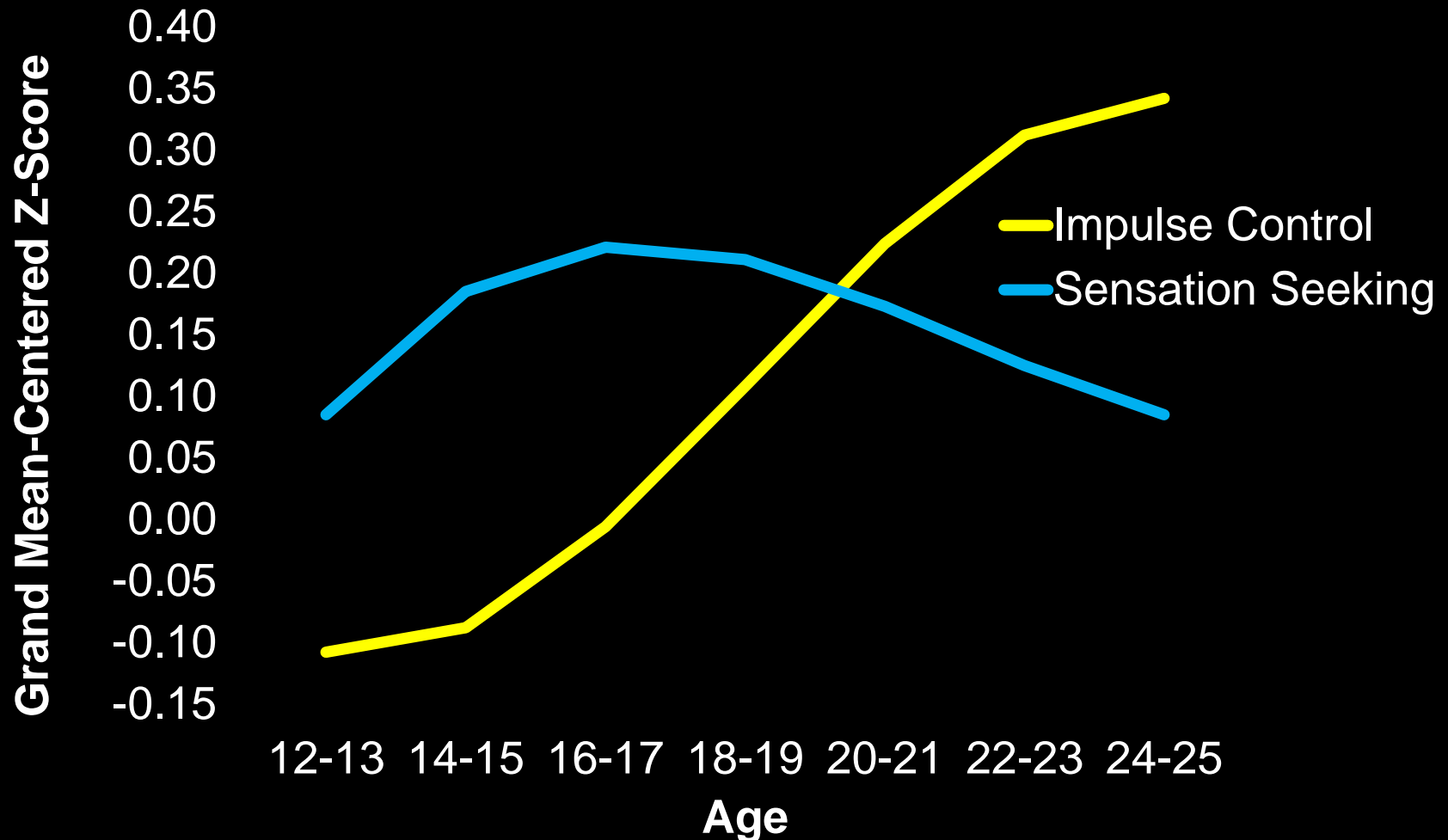
The Dual Systems Model

- ▣ Arousal of brain systems that govern incentive processing, emotional experience, and social cognition
- ▣ Still developing self-regulation
- ▣ Maturation imbalance is greatest in mid-adolescence
- ▣ Heightened vulnerability to risky behavior and psychopathology
- ▣ As individuals mature into adulthood, arousal declines and self-regulation improves
- ▣ Converging evidence from neural, neurological, and behavioral studies

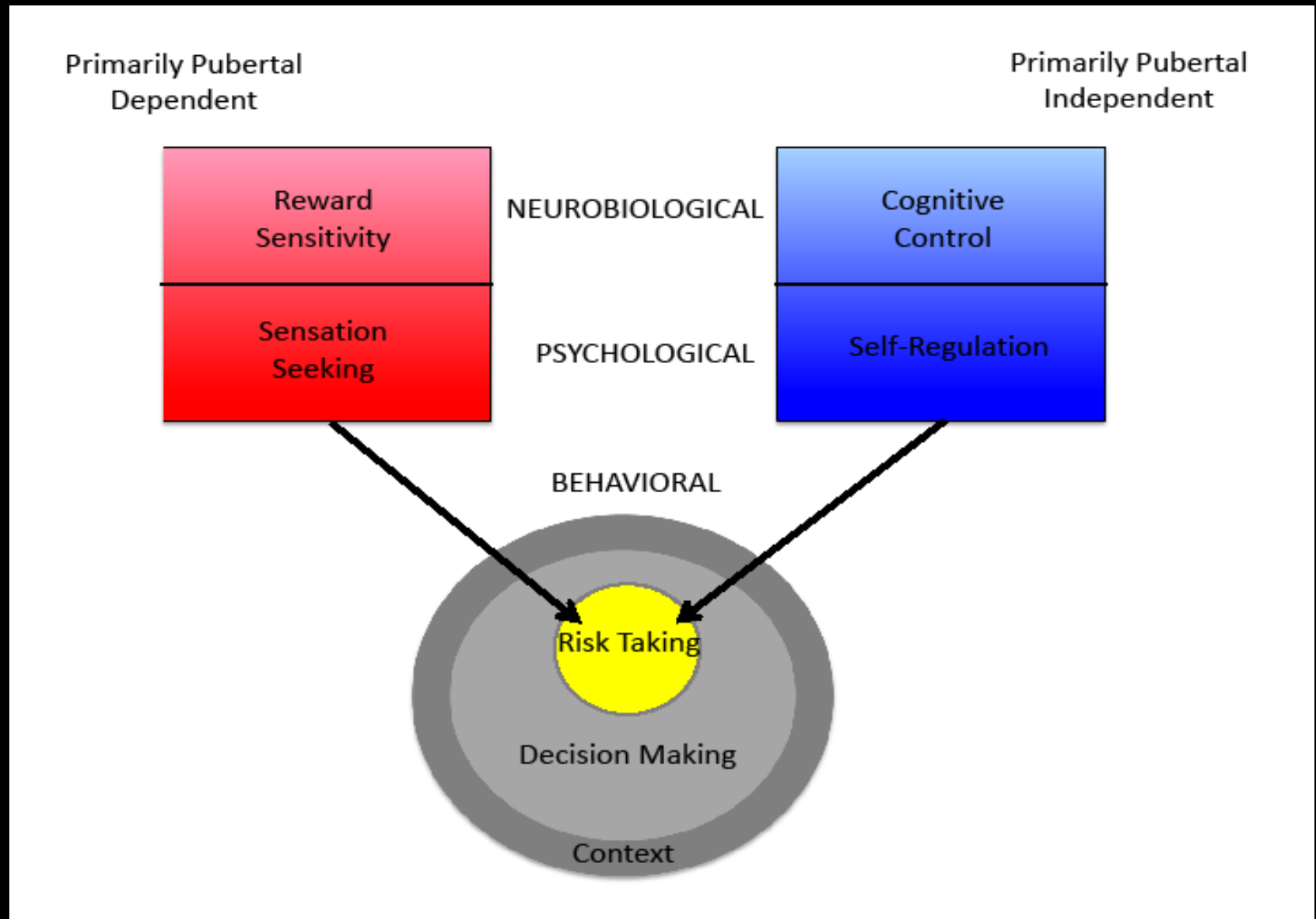
The Dual Systems Model



Sensation-Seeking and Impulse Control in the CNLSY



A Model of Adolescent Risk-Taking



Adolescence is a Second Period of Developmental Plasticity

- ▣ Profound and pervasive affective, behavioral, cognitive changes
- ▣ Dramatic remodeling of multiple brain systems
- ▣ Increased sensitivity to the environment
 - Reminiscence bump
 - Stress-responsivity
 - Attentiveness to social information
 - Susceptibility to addiction
 - Psychiatric disorder
- ▣ Decline in plasticity during transition to adulthood
 - Change in neurochemical climate that shifts tendency from synaptic plasticity to synaptic stability
 - Synaptic stability in the context of continued myelination

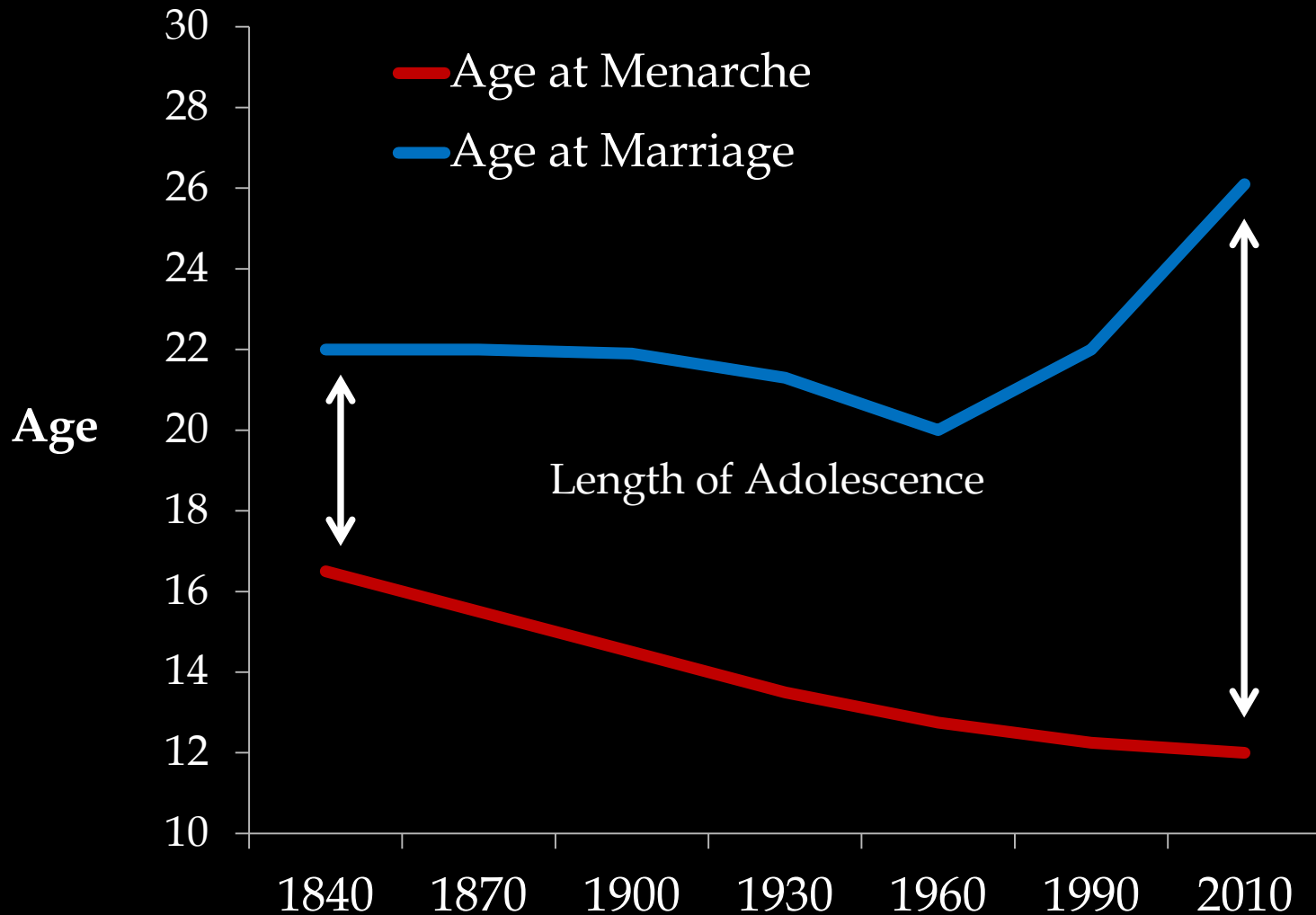
Opening and Closing the Window of Plasticity

- ▣ Increase in plasticity sparked by puberty
 - Changes in receptor density and distribution
 - Neurogenesis
 - Synaptic pruning
 - Structural and functional connectivity
- ▣ Causes of decrease in plasticity not yet known
 - Not due to changes in pubertal hormones
 - Likely due to a combination of genetic and environmental influence
 - Does routinization of activity curtail “metaplasticity”?
- ▣ Heightened plasticity in adolescence makes evolutionary sense
 - Plastic when important to learn how to function independently
 - Stable once information and skills have been acquired
- ▣ Can the window be kept open?
 - Novelty and challenge contribute to “metaplasticity”
 - Longer sensitive period of cortical development for higher IQ individuals
 - Formal education contributes to connectivity

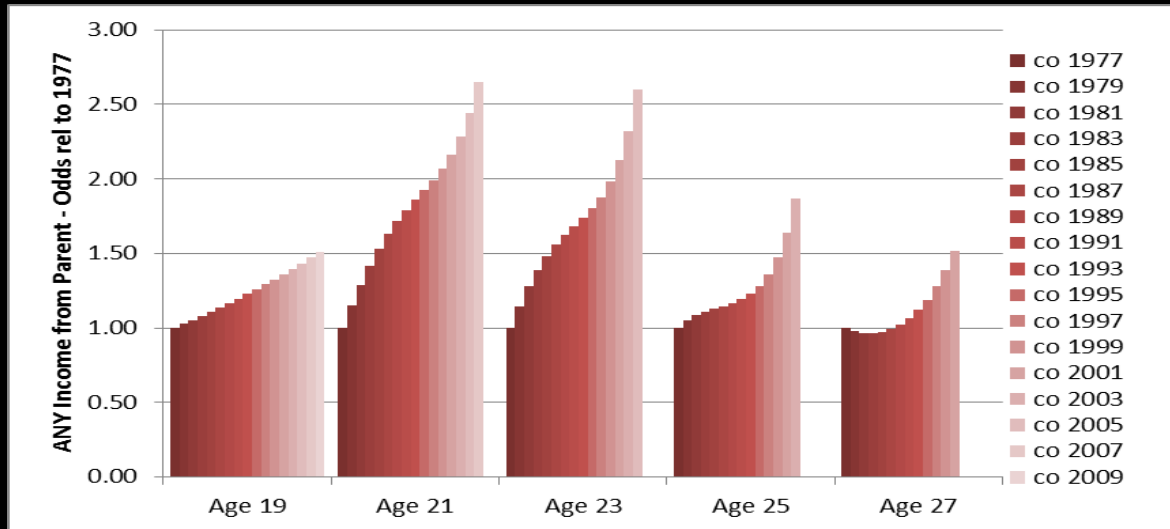
The Longest Decade

- ▣ Adolescence begins in biology and ends in culture
- ▣ Menarche and marriage as markers
- ▣ Biological beginning of adolescence is progressively earlier (3-4 months/decade)
 - Comparable for males and females
- ▣ Cultural completion of adolescence is progressively later (12 months/decade)
 - Comparable for males and females

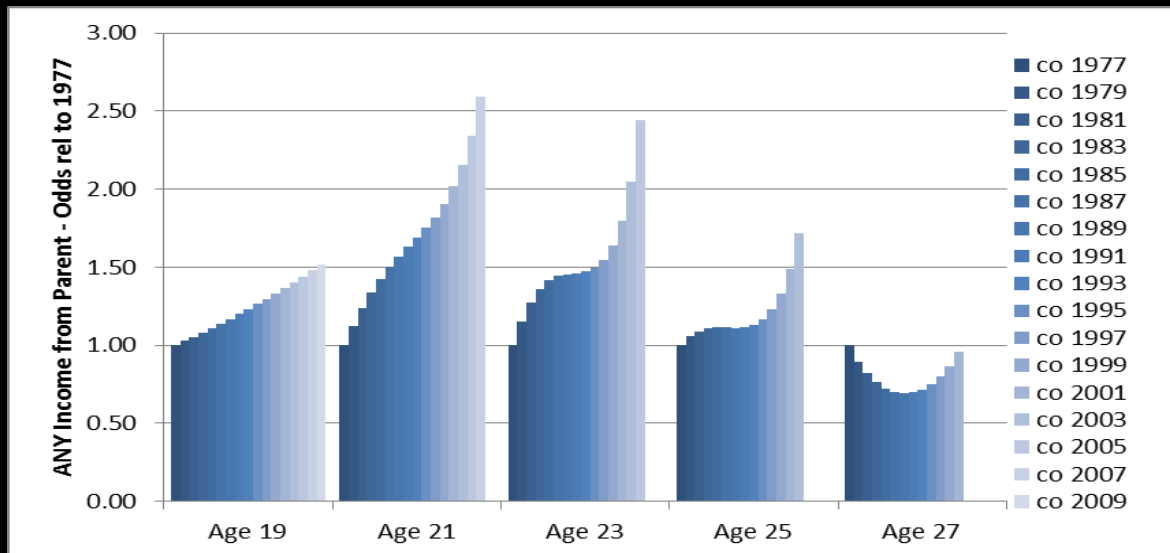
The Elongation of Adolescence



Financial Assistance from Parents



Females



Males

Why is Adolescence Longer?

- ▣ The continuing decline in pubertal onset
 - Obesity
 - Exposure to endocrine disruptors
 - Increased exposure to light
 - Increased father absence
 - Increased survival of premature infants

- ▣ The continuing delay of the transition into adulthood
 - Growing demands for higher education
 - Higher cost of housing
 - Changes in status and economic power of women
 - Changes in attitudes and values of young adults (maybe)

Impact of Elongation on Adolescent Development

- ▣ Longer period of maturational imbalance
 - Longer period of risk
 - Combination of high reward-seeking and low cognitive control especially toxic
 - Increased importance of self-regulation
- ▣ Longer period of neuroplasticity
 - Increased opportunity for intervention
 - Self-regulatory systems amenable to improvement
 - Longer period of vulnerability

Winners and Losers in The Longest Decade

- ▣ Elongation of adolescence contributes to income inequality
- ▣ Large SES differences in self-regulation and executive functioning evident by early childhood
- ▣ Compounded by exposure to harsh and inconsistent parenting
- ▣ Contributors to early puberty more likely experienced by lower SES children
- ▣ Family, school, and community context of lower SES adolescents less likely to promote self-regulation
- ▣ Higher SES adolescents have opportunities to accumulate “neurobiological capital”

Cultivating Self-Regulation

- ▣ Self-regulation is more important, less heritable, and less stable than intelligence
- ▣ Importance of authoritative parenting
- ▣ Promising interventions
 - Cognitive control training
 - Mindfulness meditation
 - Aerobic exercise
 - Disciplined physical activity
 - Teaching specific self-regulation strategies

Rethinking Delayed Adulthood

- ▣ Erroneous stereotypes of the “me generation”
 - Considerable evidence of the delayed transition
 - No evidence of psychological impact
 - No evidence of greater narcissism
- ▣ Prolonging adolescence may prolong plasticity
 - Plasticity maintained by novel experiences
 - Routinization of activity in adulthood may lead to less novelty and challenge
- ▣ Wrong question: Is delaying adulthood bad?
- ▣ Right question: How can we create opportunities for more individuals to take advantage of the delay?

Recommendations

- ▣ Revise our view of adolescence
- ▣ Early intervention is an investment, not an inoculation
- ▣ Slow the declining age of puberty
- ▣ Protect adolescents from themselves
- ▣ Promote authoritative parenting
- ▣ Promote school-based interventions that facilitate self-regulation
- ▣ Expand voluntary service opportunities

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