

2008 Washington State
Prevention Summit
Presenter Disclosure
Incorporating
Adolescent Brain Physiology
into
Risk Reduction Strategies

Janet Matthews, MSN, FNP, WHNP

No Relationships To Disclose

October 17-18, 2008

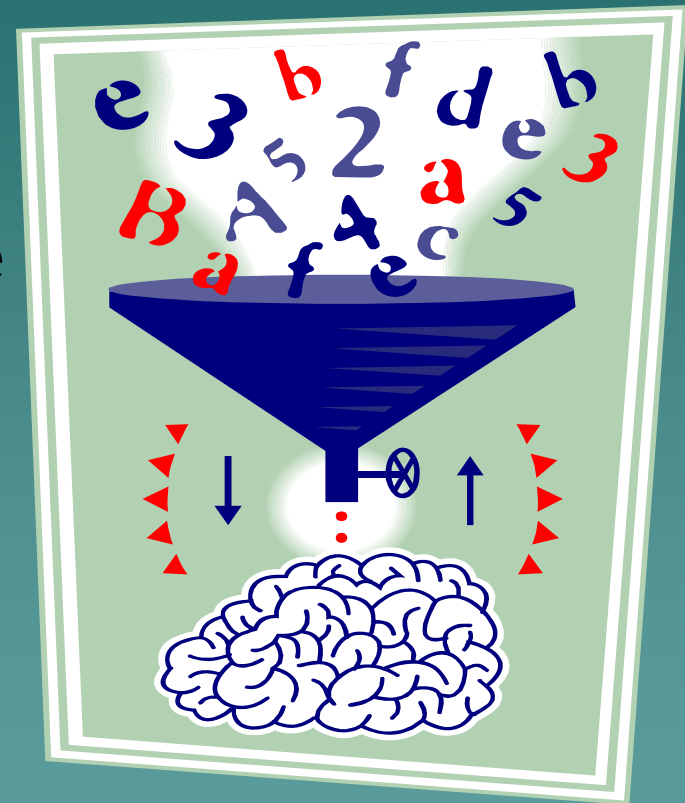
How The Adolescent Brain Deals With Pressure



Janet Matthews, MSN, FNP, WHNP

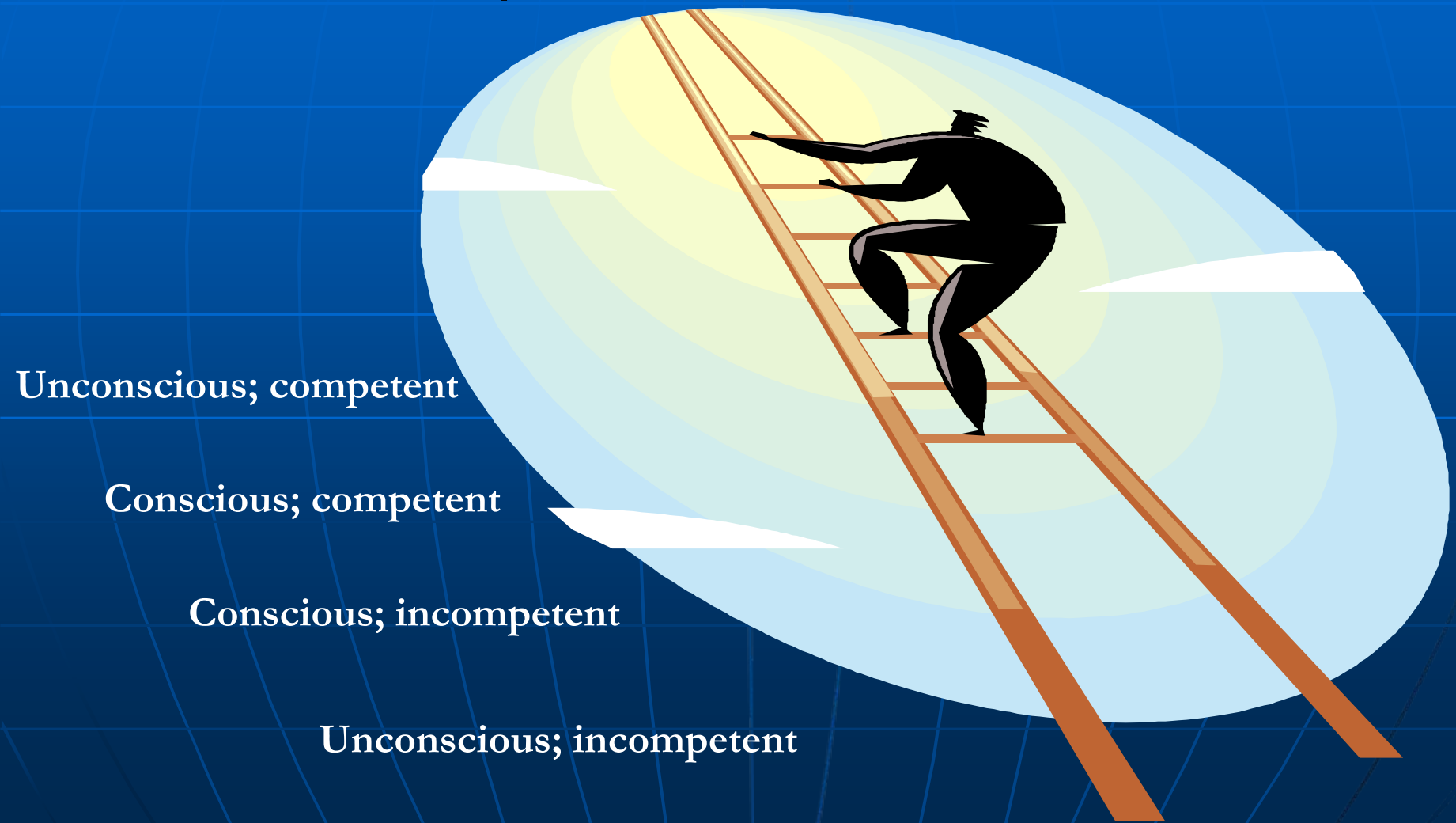
Adolescent Evolution

- ◆ ages 11 – 24
- ◆ Amygdala driven
- ◆ Dopamine sensitive
- ◆ Filter deficient
- ◆ Risk prone
- ◆ Sensation-seeking
 - Peer presence



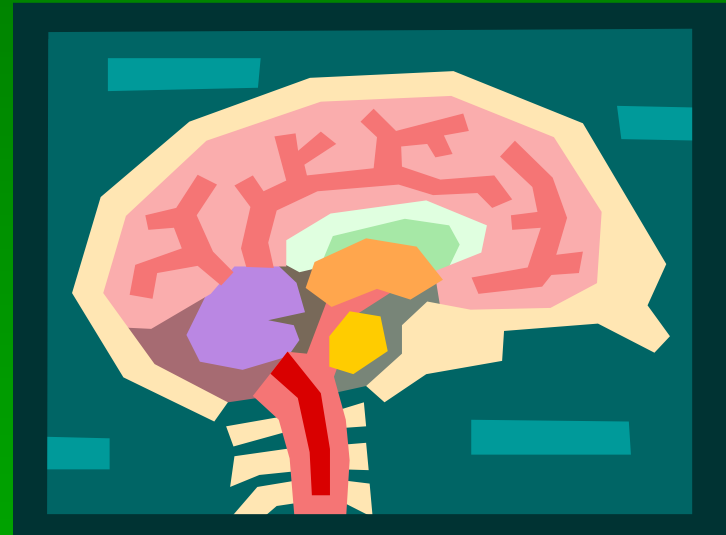
Learning Ladder

- Novice to expert



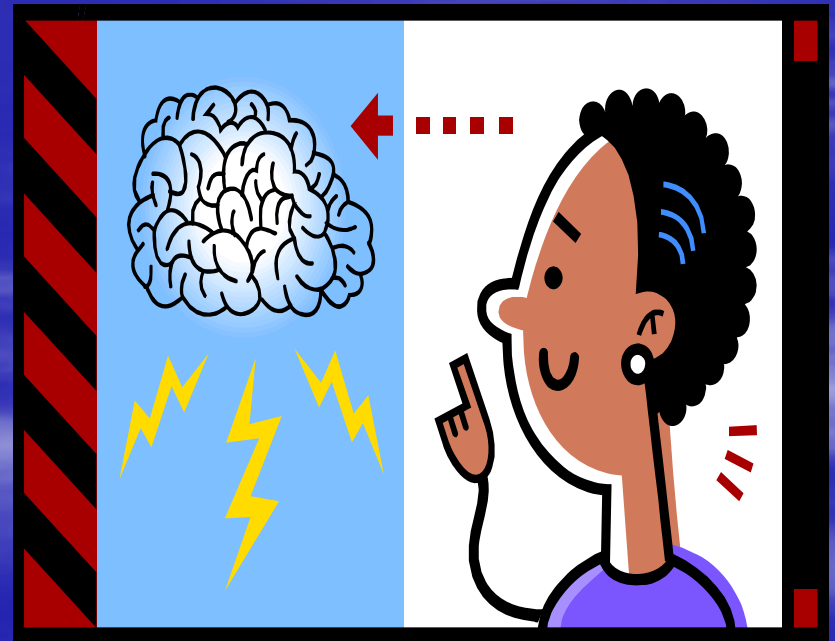
Functional Evolution

- Amphibian ~ Mammal
- Autopsy ~ MRI
- Primitive ~ Cerebral
- Myelination



Emotional Evolution

- Affect
- Shame ~ Guilt
- Eustress ~ distress
- Self talk emerges
- Puberty ~ maturity



Adolescent Prevention Messages

- Repetition as strategy
 - Fiber tract sculpting
 - Myelinated tracts
- Pruning
- Lifestyle impact
 - Increase voluntary control
- Brain > Mind



The Big Picture

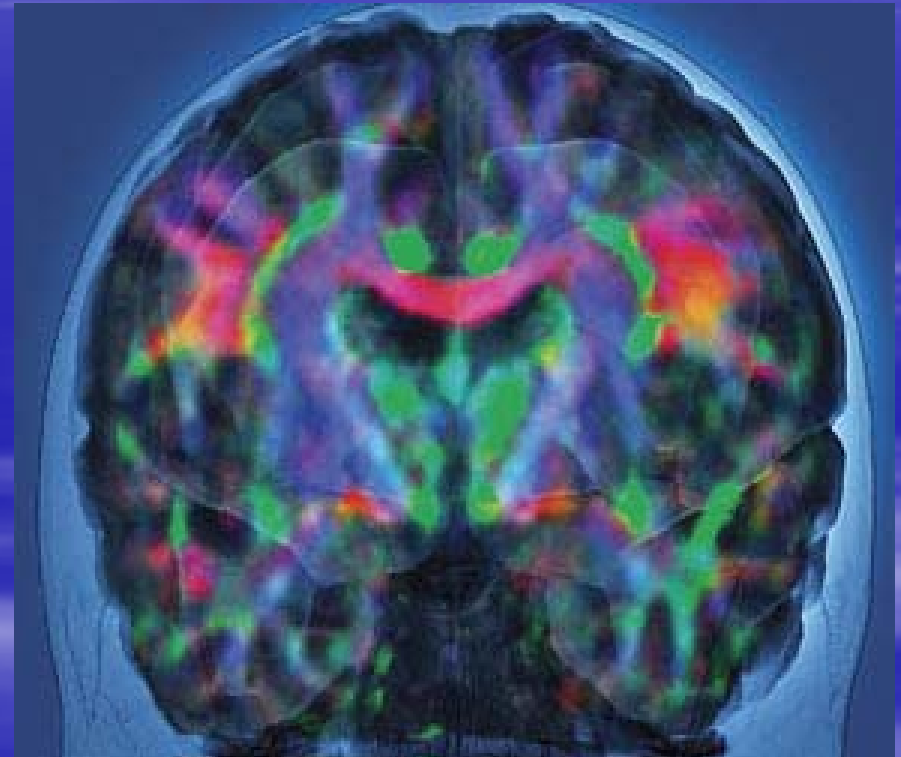


- nurture vs nature
- Myelinate vs dopamine deplete

safer risk taking

How Do We Know What We Know?

- MRI pictures show brain structures & sites of activity
- New: DTI (diffusion tensor imaging) shows color images of neural fibers that transmit signals



The Physical

- “AA” sites in brain –
“Appearance Attractiveness” –
5x higher in youth than adults





The Emotional

- Be sensitive to adolescent hypersensitivity, perceiving emotions at 2-4x the intensity
- Support adolescent self esteem, 1) Listen; 2) Validate; 3) Support good choices
- Beware of the 3 “D’s”:
1) Deny 2) Diminish 3) Disrespect

Emotional Safety

- Setting the rules for emotional safety is crucial for promoting safety and healthy positive development among youth.
- Compliments given to adolescents should be very careful – based on behavioral observations



Problem Solving

- THP helps adults cope in crisis, but in youth it causes anxiety
- “You need to calm down” not effective when THP activated
- Avg 13.6 yrs when youth shift to + engage adults in open conflict – this is WNL



The Seduction of Risk Taking



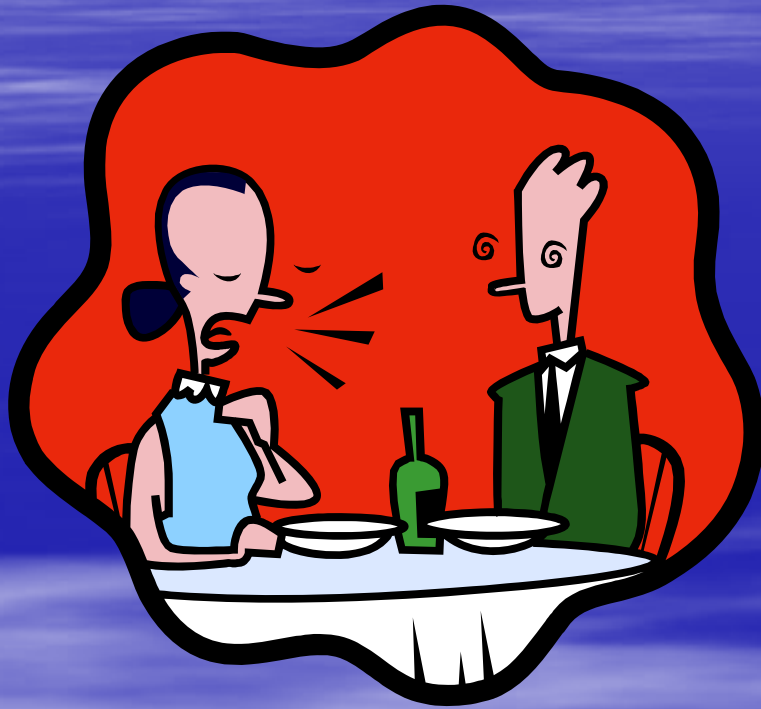
- Risk → Reward in Adolescent Brains via Nucleus Accumbens
- Teens need safe risk-taking opportunities
- Preventing risk-taking: here and now of consequences, not future

Risk Taking & the Internet

- Perspective taking
- Future thought
- Online disinhibition effect
- Virtual Mystery Tour:
healthysexedu.blogspot.com



Substance Use



- Avoid Boredom
- 10 – 14 is key window to avoid for alcohol use
- Brain is beyond plasticity window, and this is the time where cell mapping & migration process is the highest

Gender Differences

- Female brains have average 29% more verbal capacity (relative to brain size overall) vs. male brains
- Are girls “more emotional” than boys? No.
- Positive self-esteem between ages 9-10 and 13-14: for boys it drops 12-20%, for girls it drops 20-38%



Take Away Messages



- ✦ Review contents in 1 wk ; 1 month
- ✦ Adolescence is :
 - Mind under construction
 - Intersection of vulnerable & capable
- ✦ De-personalize adolescent behavior
- ✦ Positive adult framing & support a must for adolescents to practice making their own choices



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OREGON SCHOOL-BASED HEALTH CENTERS 2008

WASHINGTON COUNTY
Merlo Station HS
*Forest Grove
*Tigard HS

COLUMBIA COUNTY
Lewis & Clark ES
*Rainier
*St. Helens HS
*Vernonia

MULTNOMAH COUNTY
Binnsmead MS
Cleveland HS
George MS
Grant HS
Jefferson HS
Lane MS
Lincoln Park ES
Madison HS
Marshall HS
Parkrose HS
Portsmouth MS
Roosevelt HS

UMATILLA COUNTY
Pendleton HS
Sunridge MS

YAMHILL COUNTY
Willamina HS

CLACKAMAS COUNTY
Oregon City HS
*Canby HS
*New Urban HS

WASCO COUNTY
*The Dalles Wahtonka HS

MARION COUNTY
Hoover ES

UNION COUNTY
La Grande HS

LINCOLN COUNTY
Newport HS
Till HS
Toledo HS
Waldport HS

POLK COUNTY
*Falls City

BAKER COUNTY
Baker HS

BENTON COUNTY
Lincoln ES
Marion ES/MS

GRANT COUNTY
*TBD

LANE COUNTY
North Eugene HS
Sheldon HS
South Eugene HS
Springfield HS
Winston Churchill HS




COOS COUNTY
Marshfield HS

WHEELER COUNTY
Mitchell K-12

DOUGLAS COUNTY
Roseburg HS
*Douglas HS

CURRY COUNTY
*Brookings-Harbor

Total number of Certified SBHCs = 45
Total number of Planning Phase I Sites = 17

-  Counties with Certified SBHCs
-  Counties with Certified SBHCs and Planning Phase I Sites
-  New Counties with Planning Phase I Sites

*Indicates location of Planning Site
**Indicates location of Advanced Planning Site

JOSEPHINE COUNTY
Illinois Valley HS
Lorna Byrne MS
*Evergreen ES

JACKSON COUNTY
Ashland HS
*Bute Falls/Prospect
Crater HS
Jackson ES

**Jewett ES
Oak Grove ES
Phoenix ES
Washington ES

KLAMATH COUNTY
*Gilchrist School

DESCHUTES COUNTY
La Pine K-12 Campus
*Bend
*Redmond

JEFFERSON COUNTY
Madras HS

Resources

1. The Adolescent Brain: A Work in Progress. *The National Campaign to Prevent Teen Pregnancy.*
www.teenpregnancy.org/resources/reading/pdf/BRAIN.pdf
2. Brizendine, Luann. The Female Brain.
3. The Dana Foundation. www.dana.org (new relevant research in brain development)
4. The Brain Connection.
www.brainconnection.com