

## PUBLIC HEALTH & JUSTICE



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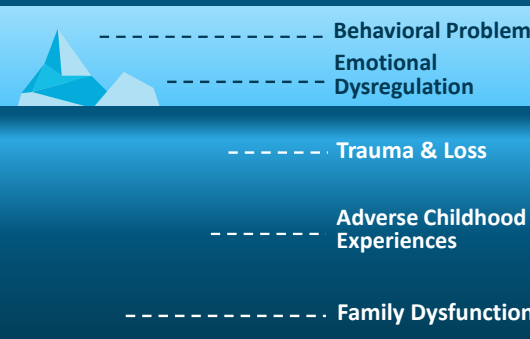


DEVELOPMENT: THE PART WE DON'T SEE

## CHILDHOOD

It is impossible to understand the adults we become unless we understand the children we have been


## Across the Lifespan



- Behavioral Problems
- Emotional Dysregulation
- Trauma & Loss
- Adverse Childhood Experiences
- Family Dysfunction

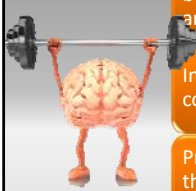
## IT BEGINS WITH LIFE BEFORE SCHOOL

EXPERIENCES BUILD BRAIN ARCHITECTURE

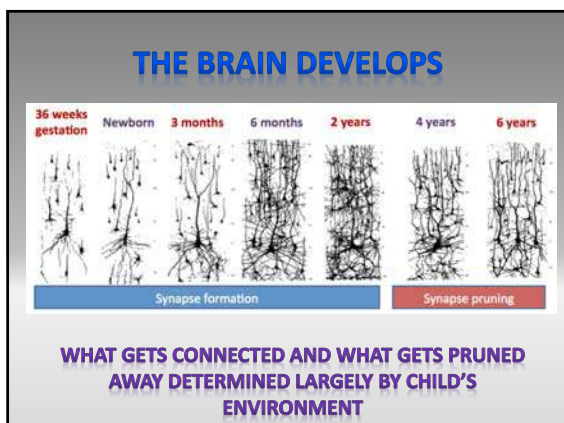


Scientists now know a major ingredient in this developmental process is the "serve and return" relationship between children and their parents and other caregivers.

## THE BRAIN DEVELOPS



- Brains are built over time, from the bottom up and keep developing until around age 25-30
- In infancy, 700 new neural connections are formed every second.
- Pruning follows rapid proliferation so that brain circuits become more efficient.

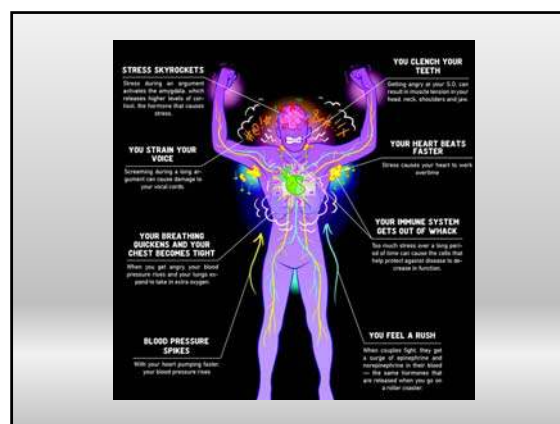
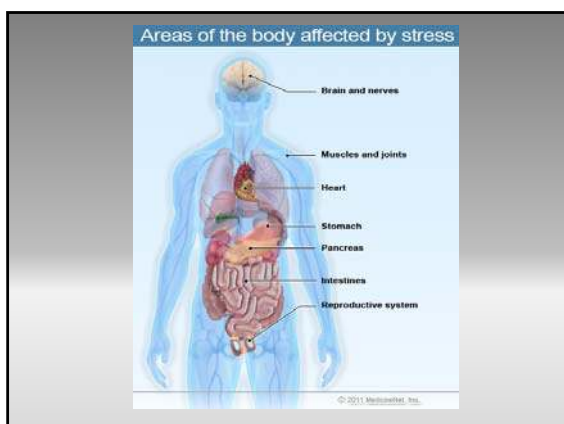
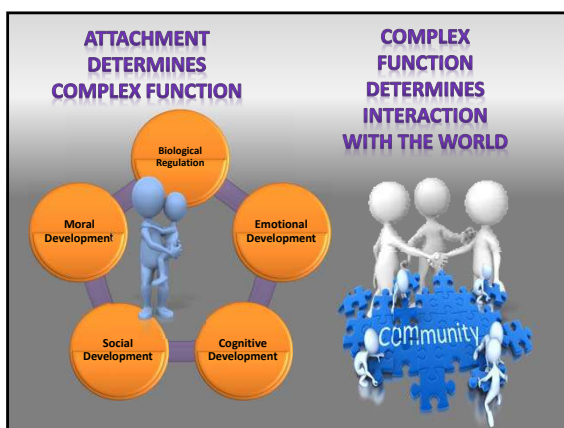


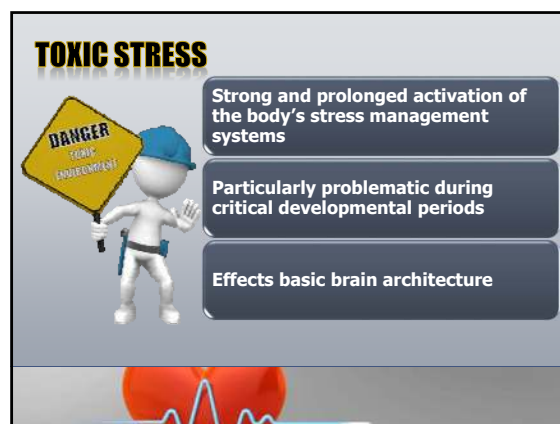
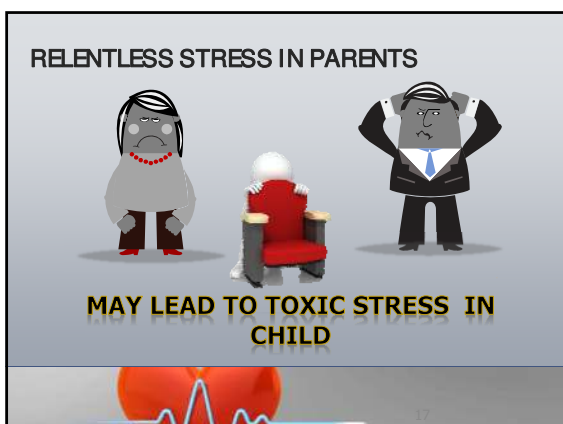
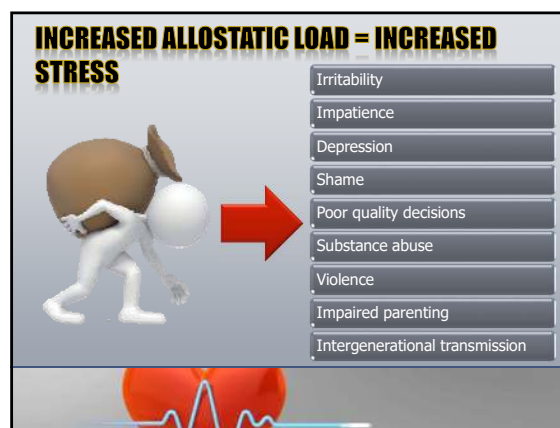
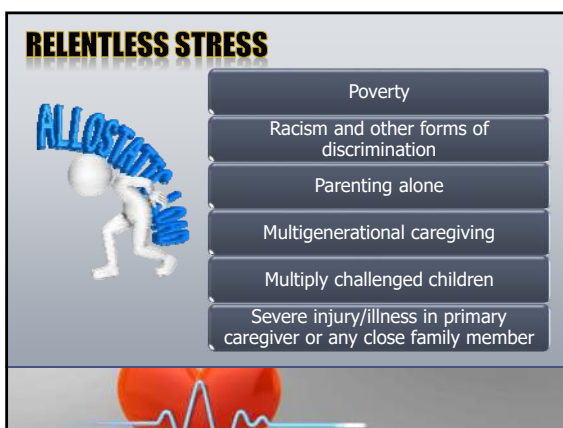
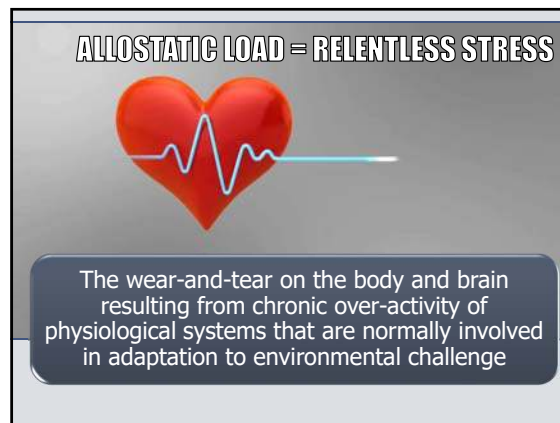
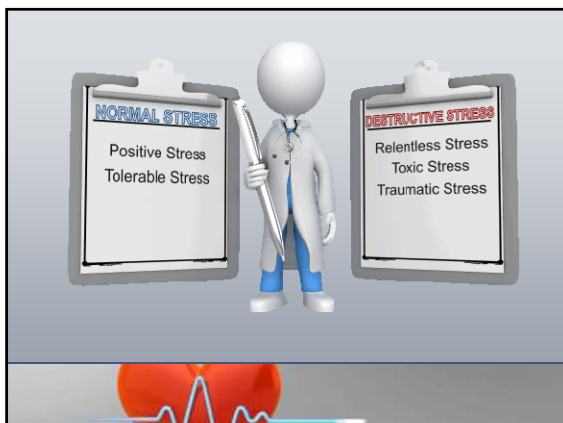
### THE FRONTAL LOBES

Last to develop, longest to develop – mid-20s

Allow us to use this information to modulate and guide our interactions with those around us

Governs moral reasoning, judgment





## The Relationship of Adverse Childhood Experiences to Adult Health Status

A collaborative effort of Kaiser Permanente and The Centers for Disease Control

Vincent J. Felitti, M.D.  
Robert F. Anda, M.D.



In 1998, largest study of its kind ever (almost 18,000 participants)

Examined the health and social effects of adverse childhood experiences over the lifespan

Majority of participants were 50 or older (62%), were white (77%) and had attended college (72%).

### THE ADVERSE CHILDHOOD EXPERIENCES STUDY (ACEs STUDY)

### ACE CATEGORIES WHEN YOU WERE 18 OR YOUNGER



ABUSE

- PHYSICAL ABUSE
- SEXUAL ABUSE
- EMOTIONAL ABUSE
- PHYSICAL NEGLECT
- EMOTIONAL NEGLECT

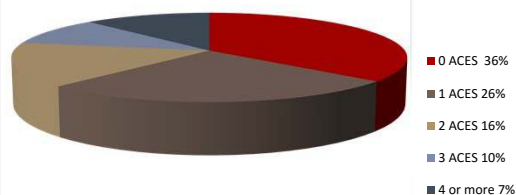


HOUSEHOLD

- MENTAL ILLNESS
- SUBSTANCE ABUSE
- DOMESTIC VIOLENCE
- PARENTAL SEPARATION/DIVORCE
- INCARCERATION

1 POINT /CATEGORY – ADD TO GET TOTAL ACE SCORE

### ACES SCORES



The ACE Score is used to assess the total amount of stress during childhood and has demonstrated that as the number of ACE increase, the risk for the following health problems increases in a strong and graded fashion:

Alcoholism and alcohol abuse	Intimate partner violence
COPD	Multiple sexual partners
Depression	STDs
Fetal death	Smoking
Health-related quality of life	Suicide attempts
Illicit drug use	Unintended pregnancy
HEART DISEASE	Early smoking
Liver disease	Adolescent pregnancy
Autoimmune disease	Cancer
Obesity	Stroke

### ACES SCORE OF 4 OR MORE

- Twice as likely to smoke
- Seven times more likely to be alcoholic
- Six times more likely to have had sex before the age of 15
- Twice as likely to have been diagnosed with cancer
- Twice as likely to have heart disease
- Four times as likely to suffer from emphysema or chronic bronchitis
- Twelve times as likely to have attempted suicide
- Ten times more likely to have injected street drugs

## The Philadelphia ACE Study

A collaborative, originally led by the Institute for Safe Families (ISF) and now by Health Federation, to develop and implement research, practice, and policies in urban pediatric settings based on the Adverse Childhood Experiences (ACE) study.



## ACE Study Population is not Representative of Urban Populations (R. Wade, M.D. 2015)

Demographics	ACE Study	Philadelphia
Mean age	56	34
Race/ethnicity	79% White	41% White
	5% African American	43% African American
	5% Hispanic	12% Hispanic
High school graduates	94%	36%
College graduates	43%	13%
Percent below FPL	Not measured	25%

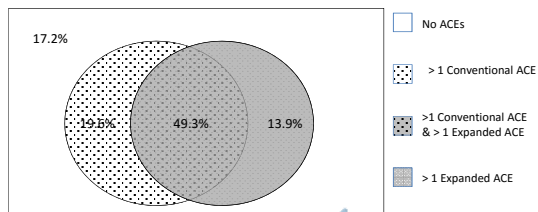
## Philadelphia ACE Study Questions

Conventional ACEs	Expanded ACEs
Physical Abuse	Witnessing Violence
Emotional Abuse	
Sexual Abuse	Living in Unsafe Neighborhoods
Emotional Neglect	
Physical Neglect	Experiencing Racism
Domestic Violence	
Household Substance Abuse	Living in Foster Care
Incarcerated Care Provider	
Mental Illness in the Home	Experiencing Bullying

## Many of the Traditional ACEs are More Prevalent in an Urban Setting (R. Wade, 2015)

	Philadelphia ACE Study (N = 1,784)	Kaiser ACE Study (N = 17,337)
Emotional abuse	33.2%	10.6%
Physical abuse	35.0%	28.3%
Sexual abuse	16.2%	20.7%
Physical neglect	19.1%	14.8%
Emotional neglect	7.7%	9.9%
Substance abusing household member	34.8%	26.9%
Mentally ill household member	24.1%	19.4%
Witnessed domestic violence	17.9%	12.7%
Household member in prison	12.9%	4.7%

## Overlap Between Exposure to Conventional and Expanded ACEs (R. Wade, M.D. 2015)



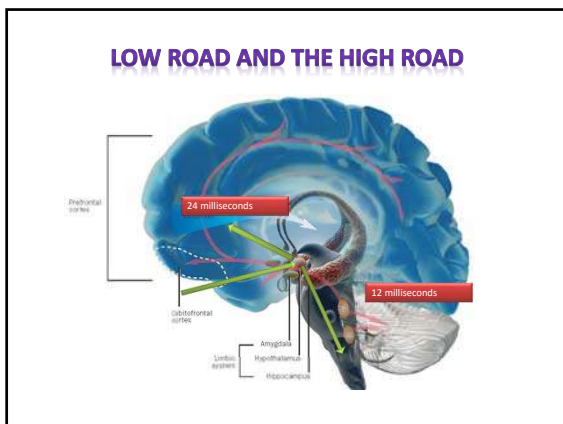
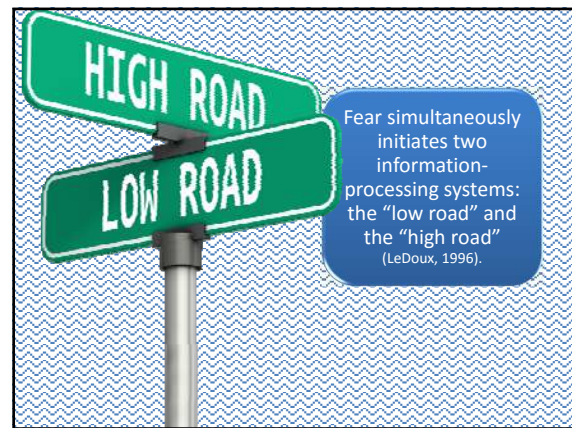
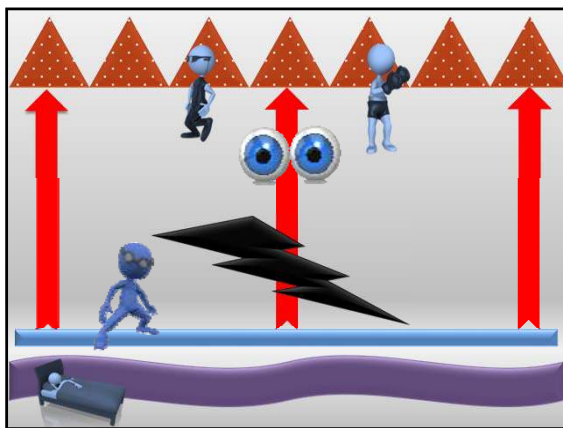
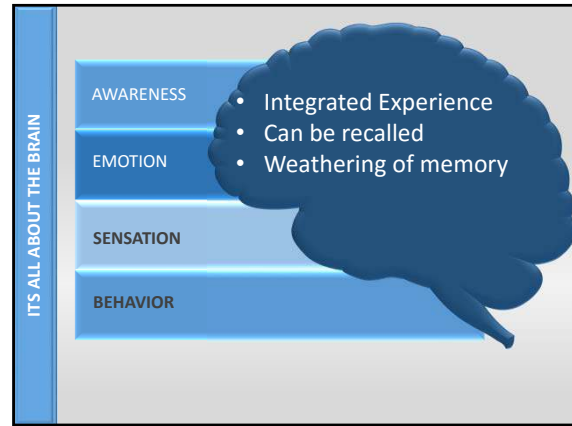
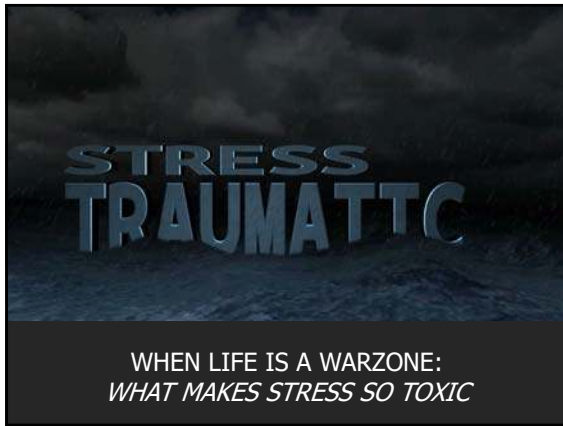
## Total ACE Score $\geq 4$ by Zip Code

### Health Statistics from these 5 Zip Codes

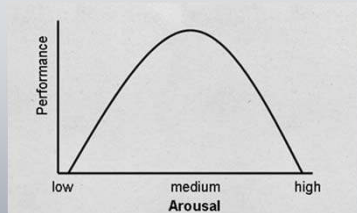
- 22% of adults unemployed
- 46% of residents live in poverty
- Life expectancy for males age 68
- 22% of children obese
- Homicide rate 30 to 40 deaths per 100,000







### THE PROBLEM WITH EXTREME STRESS:

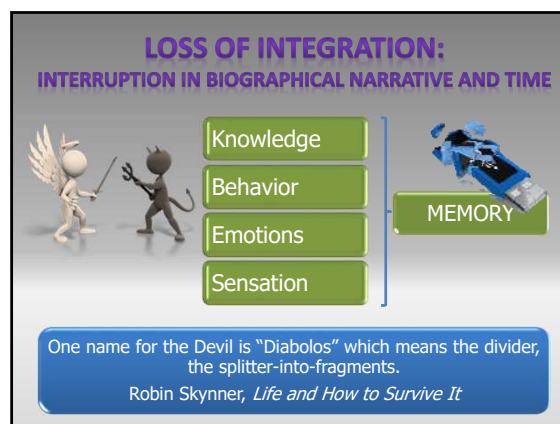
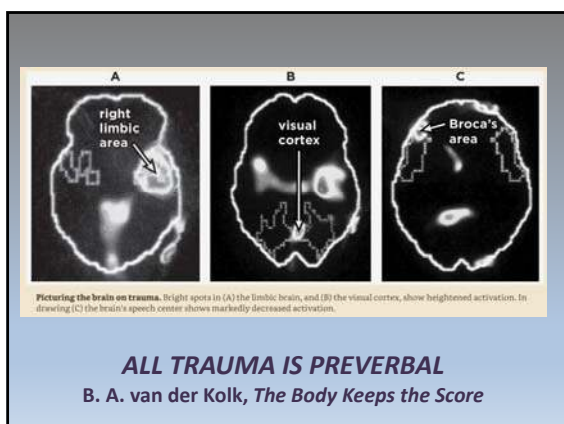
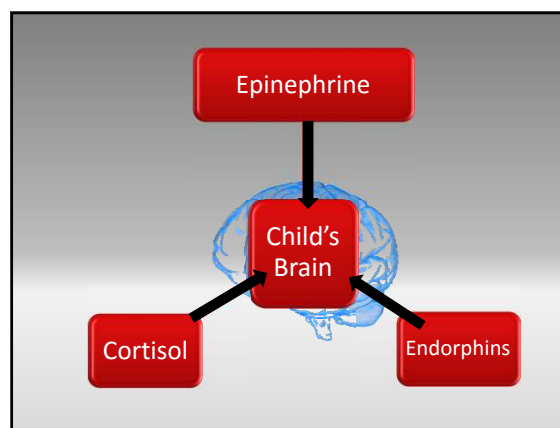
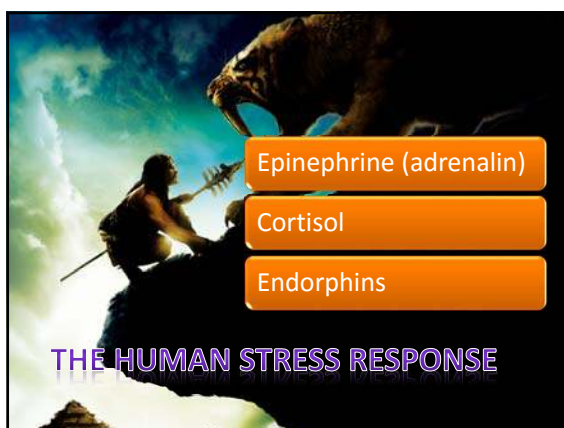


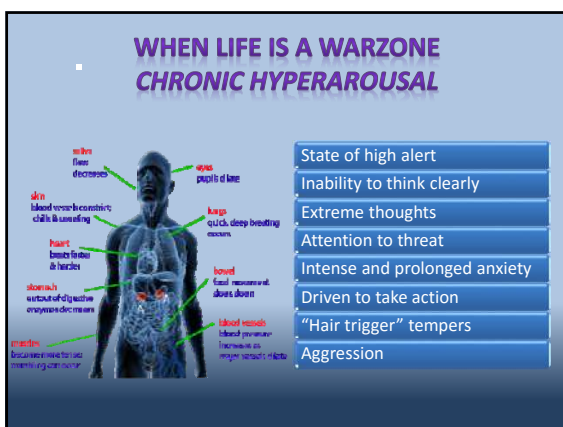
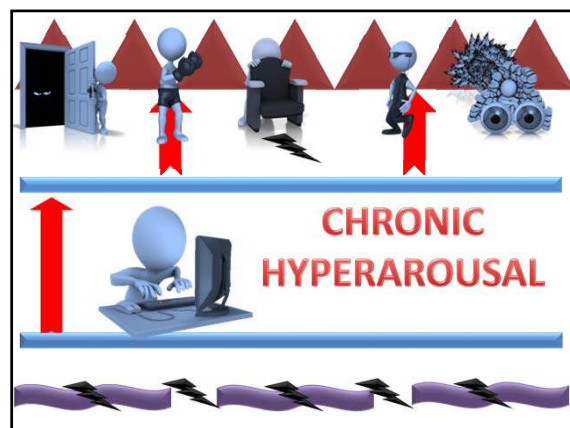
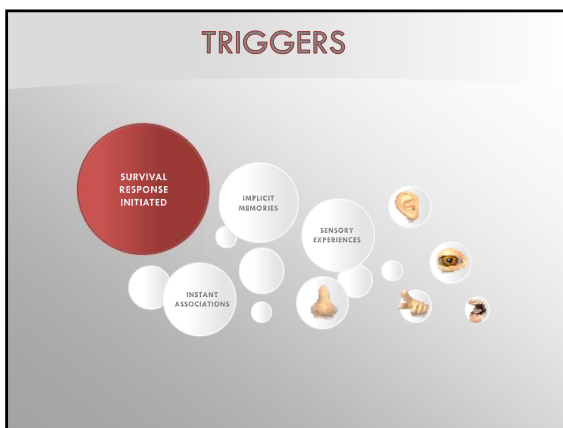
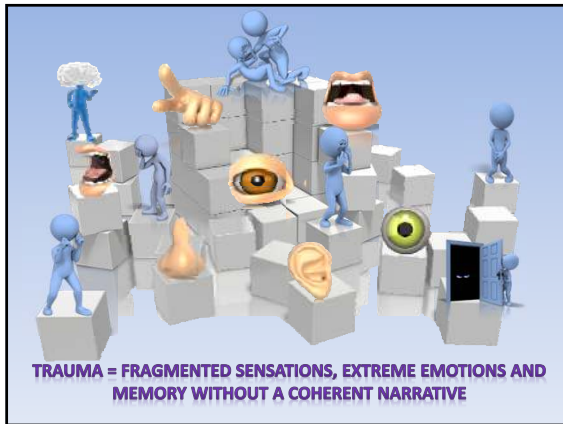
*Progressively diminished cognitive and physical performance as heart rate increases*



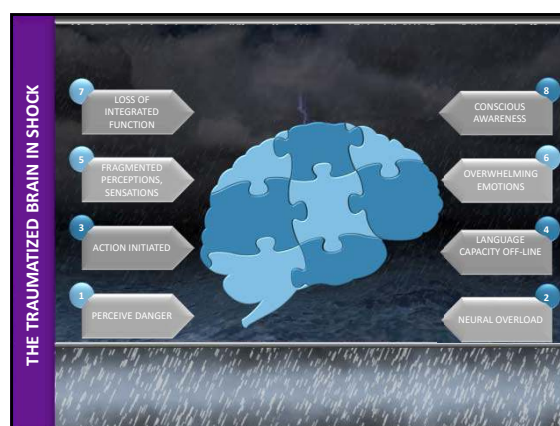
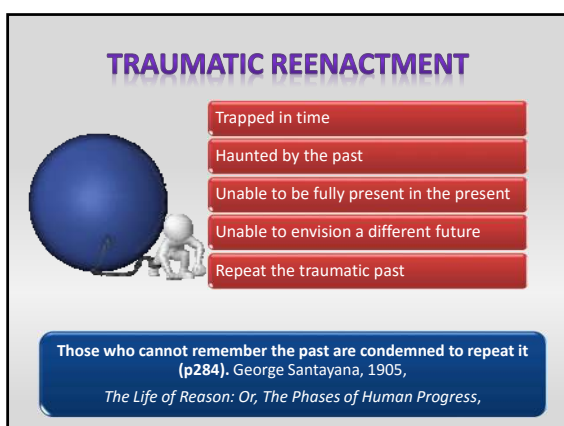
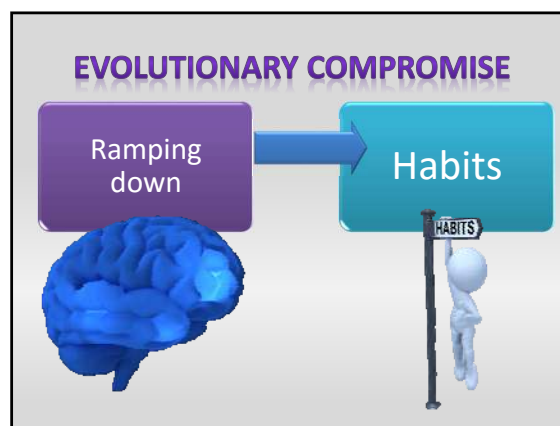
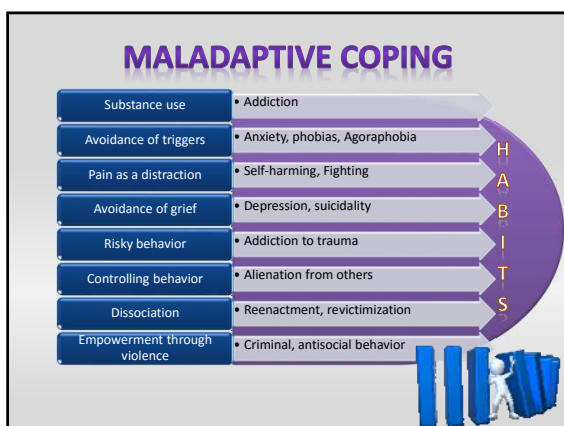
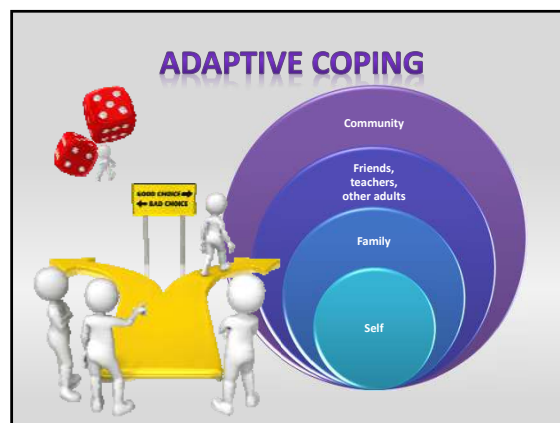
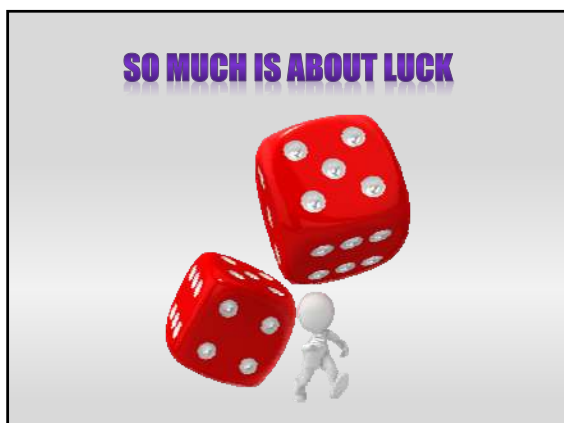
### HEART RATE AND FEAR

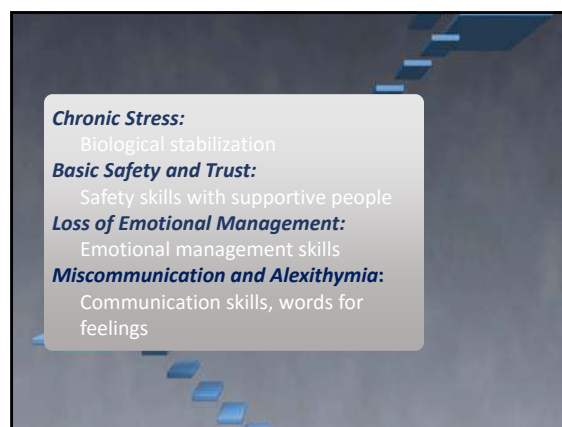
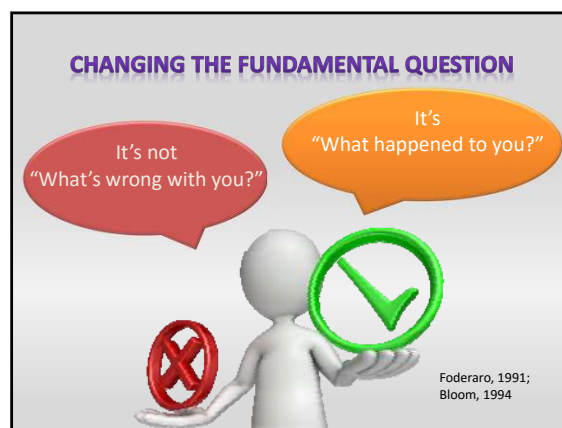
60-80 bpm	Normal Resting heart rate.
80 -115 bpm	Fine motor skills start to deteriorate
115 – 145 bpm	Complex motor skills deteriorate. Increased cognitive function and reaction time.
145 – 175 bpm	Cognitive processing deteriorates, loss of peripheral vision, loss of depth perception, loss of near vision, auditory exclusion
175pm + bpm	Irrational fight, flight, or freeze, submissive behaviour, voiding of bowels.











***Dissociation, Fragmentation:***  
Grounding, reconstruction of memory, integration: trauma-specific approaches

***Systematic Error and Reenactment:***  
Pattern recognition and change

***Impaired Executive Function:***  
Healthier use of power and executive functions - self-control, self-discipline

***Impaired Cognition:***  
Better judgment, decision-making

***Inadequate relationship skills:***  
Social skills, relationships

***Learned Helplessness:***  
Mastery Experiences

***Aggression:***  
Ability to manage aggressive impulses

***Unresolved Grief:***  
Mourning for what is lost

***Demoralization and Failure of Imagination:***  
Belonging to a meaningful, worthwhile, nonviolent and caring culture & Imagining a different and better future



**PRIMARY: Trauma-informed**

- Universal knowledge about trauma, adversity and its effects

**SECONDARY: Trauma-responsive**

- Policies and practices in place to minimize damage and maximize opportunities for healthy growth and development in populations at risk.

**TERTIARY: Trauma-specific**

- Therapeutic interventions that specifically explore the trauma in the initial phases of therapy and then utilize those discoveries as a foundation as the therapy moves into current issues



