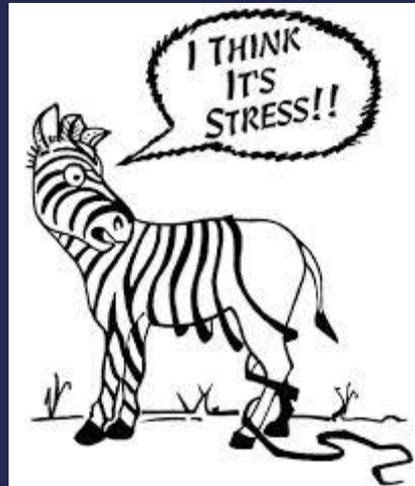


Caregiver Stress: Insights and Strategies from Science



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SEED

Stress Early Experience & Development
Research Center



CHILD HEALTH & DEVELOPMENT LAB
AT THE UNIVERSITY OF DENVER



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Adolescents and Emerging Adults



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Today's Goals

- Understand how stress affects your health
 - Both how your legacy of stress may influence who you are
 - And how your current experience of stress influences your well-being
- What can you do about it?

Outline

- Understanding stress and its effects on the body
- Legacy of stress?
 - Adverse childhood experiences
 - Genetic and epigenetic
- Stress among caregivers
- Stress Management tips!

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Experienced Stress (& its Consequences) are the Result of Your Body's Defense Efforts

- **Analogy: Your immune response to an infection**



- Its how you manage the infection (fever, malaise, sickness behavior, swelling, activated lymph nodes etc.)
- AND its what can be observed in your body as a reaction to the infection
- AND it can be the way an illness takes a toll on you

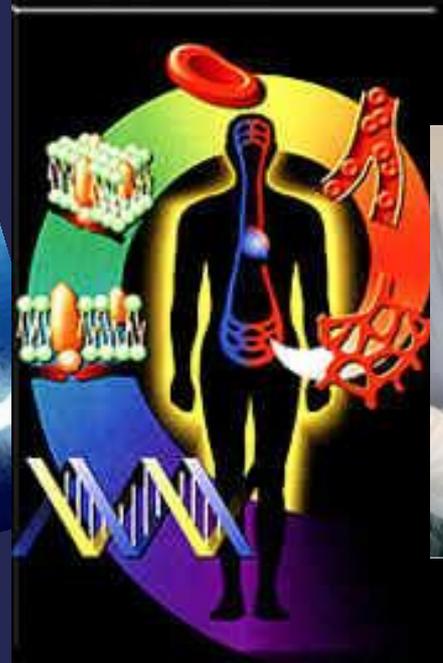
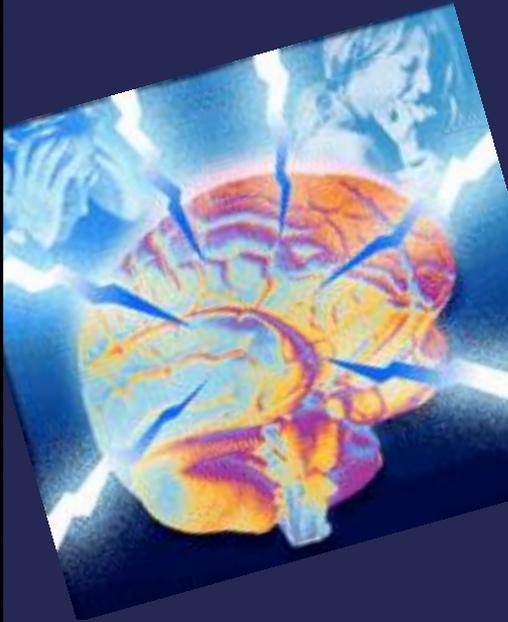
Experienced Stress (& its Consequences) are the Result of Your Body's Defense Efforts

- **Stress: your physiologic response**
 - (to events, situations, illnesses, physical perturbations, feelings etc.)
 - This physiologic response is how you manage the challenge
 - Also causes short and long term observable body changes and implications for health



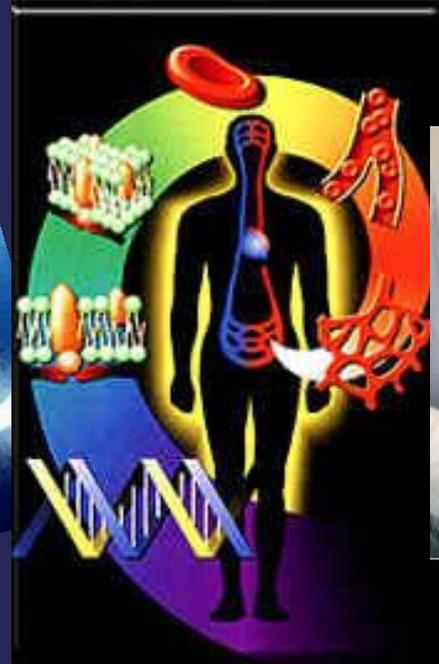
Physiologic Stress

How Does Stress Get “Under the Skin”?

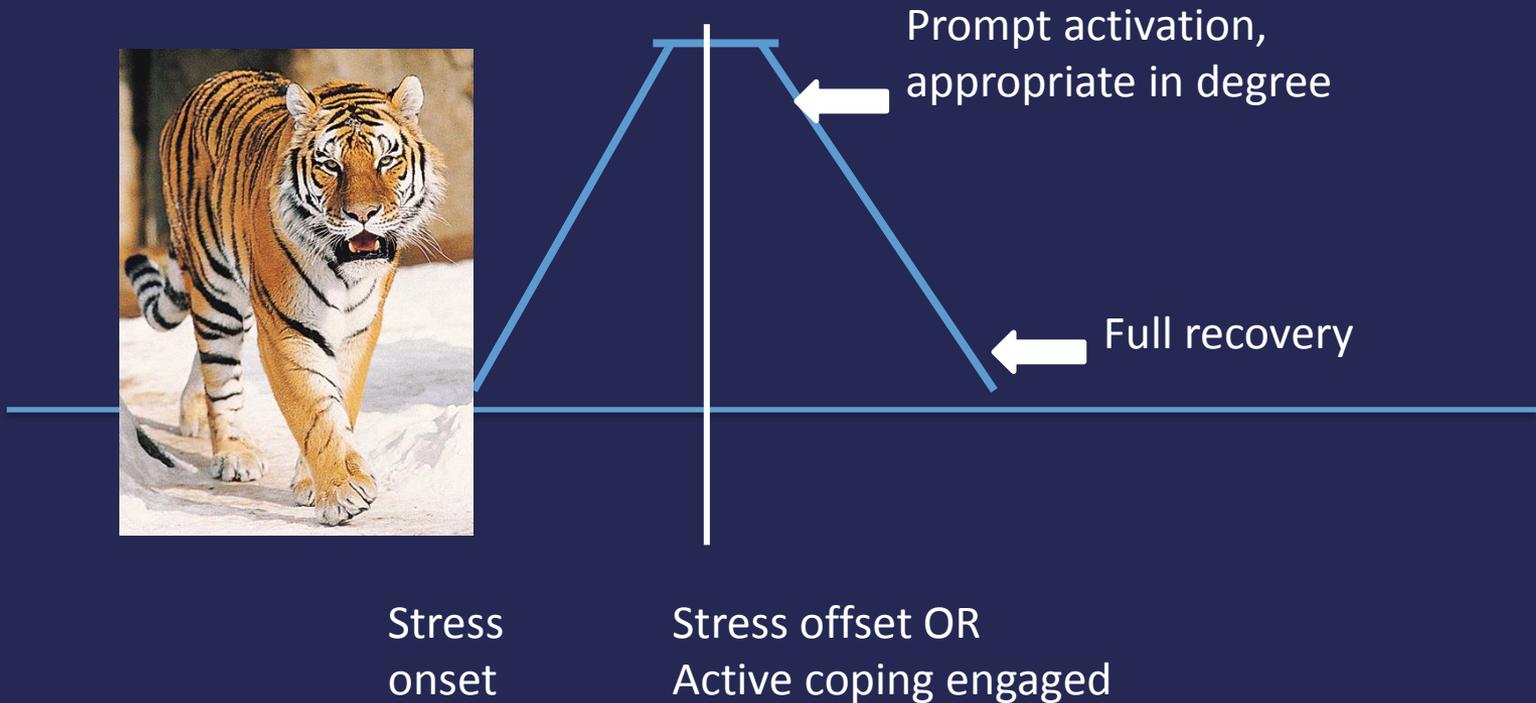


Physiologic Stress

How Does Stress Get “Under the Skin”?



Ideal Stress Response



Function of the Stress Response

- ▶ **Physiologic stress is largely about energy**
 - Handling a threat is metabolically very costly, whether the response is to fight or to flee

- ▶ **Our stress systems divert energy from long-term processes to the immediate threat**

- **Away from**

- digestion
- reproduction
- growth
- repair
- long-term immune processes (making antibodies for a secondary infection)

- **Toward**

- respiration
- glucose to burn
- increased heart rate to move energy to muscles
- short-term immune processes (trafficking white blood cells to the site of infection)

Normal State Transitions & Metabolism



When is physiologic stress good vs. bad?

- When is it adaptive, helpful, necessary?
- When is it maladaptive, costly, and leading to physical and mental illness?

Stress as Allostasis & Allostatic Load

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- **Reconceptualizes stress as an issue of balance**

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 - OR Adaptation

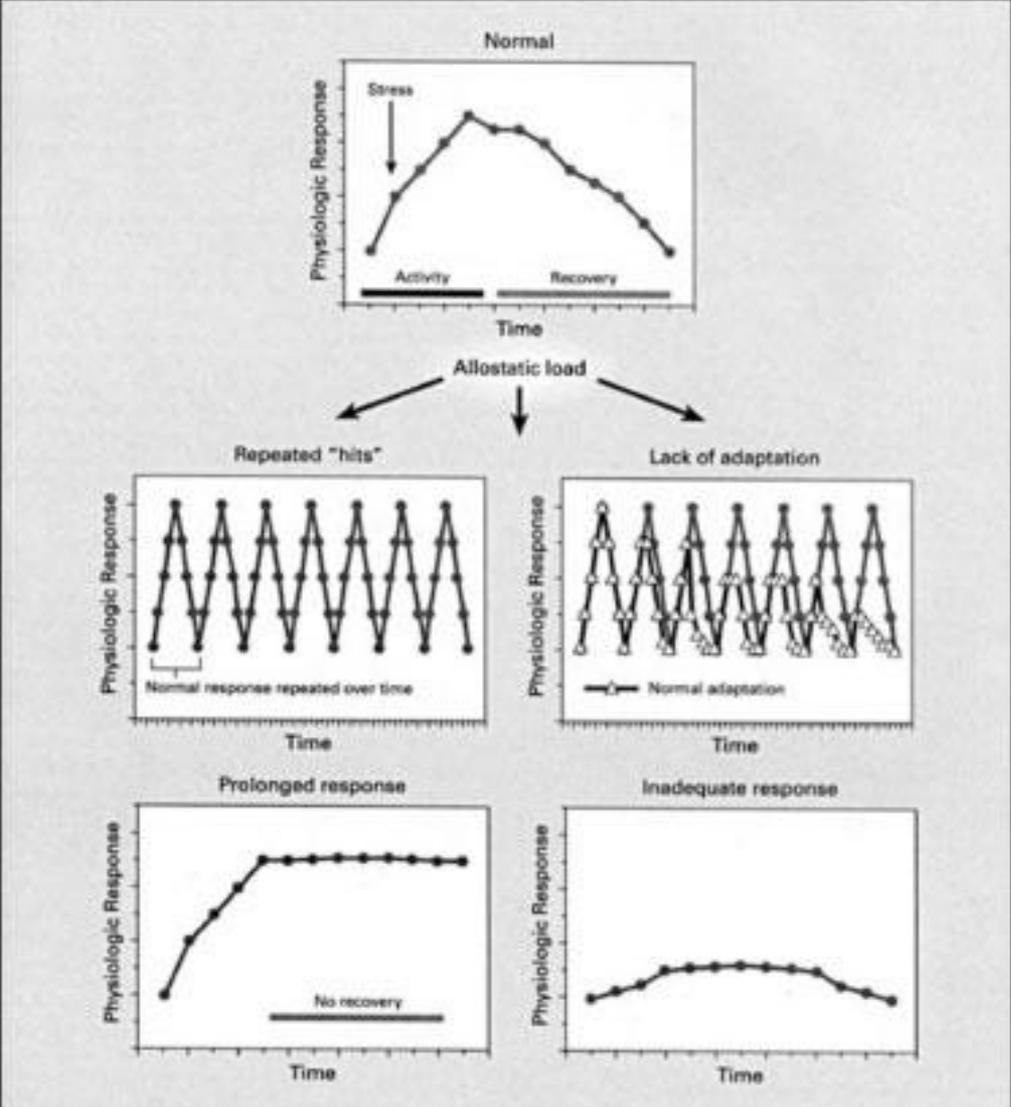
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- **Allostatic Load**
 - Wear and tear on stress systems over the life time
 - Occurs when the systems are activated chronically

Healthy Stress Response vs. Maladaptive Response Types



Long-term Effects of Chronic Stress

- **influences susceptibility to or progression of a number of diseases:**
 - cardiovascular disease (Smith & Ruiz, 2002)
 - diabetes (Mooy, 2000)
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- **can accelerate aging:**
 - shorter telomere length, less telomerase activity (Epel et al., 2004)

Effects of stress depend on many factors

- the type of stressor
- the duration of the stress (acute vs. chronic)
- the unpredictability or uncontrollability of the stress
- the social environment of the stressed individual including caregiving in children and social support in adults
- Genetic/epigenetic risk factors

Risk Factors' Effect on Life Expectancy

- Smoking 10 years¹
- Obesity 6-7 years^{2, 3}
- High blood pressure 5 years⁴
- Diabetes 7-8 years⁵

¹ Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. *BMJ* 2004; 328: 1519–27.

² Haslam DW, James WP (2005). "Obesity". *Lancet* 366 (9492): 1197–209.

³ Nedcom, A, Barendregt, JJ, Willekens, F et al. (January 2003). "[Obesity in adulthood and its consequences for life expectancy: A life-table analysis](#)" (PDF). *Annals of Internal Medicine* 138 (1): 24–32.

⁴ Franco OH, Peeters A, Bonneux L, de Laet C. Hypertension. 2005 Aug;46(2):280-6.

⁵ Franco OH, Steyerberg EW, Hu FB, Mackenbach J, Nusselder W. Arch Intern Med. 2007 Jun 11;167(11):1145-51.

Risk Factors' Effect on Life Expectancy

– Smoking	10 years ¹
– Obesity	6-7 years ^{2, 3}
– High blood pressure	5 years ⁴
– Diabetes	7-8 years ⁵
– Childhood Stress	20 years

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ACE Score

Item type	Score
Verbal abuse, OR threat of physical abuse to child	1
Physical abuse of child	1
Sexual abuse of child	1
Lack of supportive, loving environment	1
Neglect of child	1
Parents ever separated or divorced	1
Mother/stepmother physically abused	1
Household member substance abuse	1
Household member mental illness	1
Household member incarcerated	1
TOTAL POSSIBLE	10

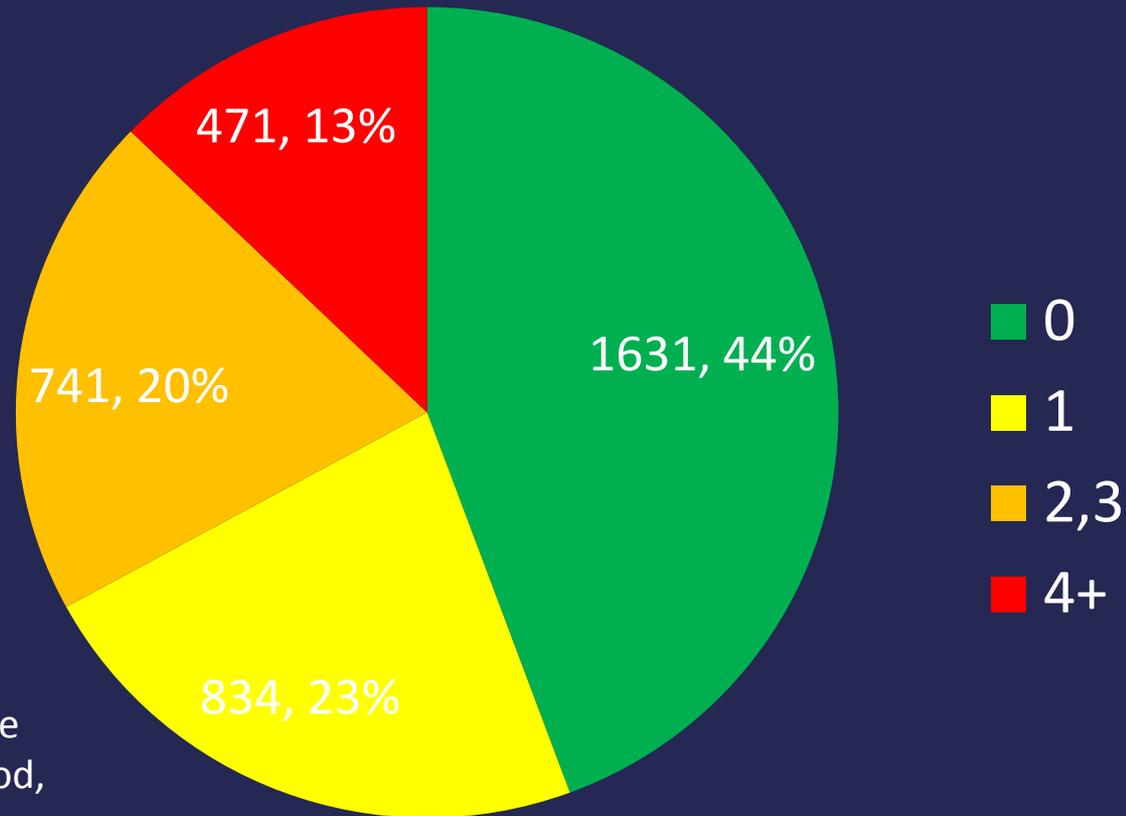
Adverse Childhood Experiences Study

- Collaboration between the CDC and Kaiser
- 17,000 Participants
- Compute an ACE score to calculate early life adversity
- 6 or more associated with a 20-year reduction in life span
- 4 or more with a number of serious health conditions



For more information: <http://www.cdc.gov/ace/>

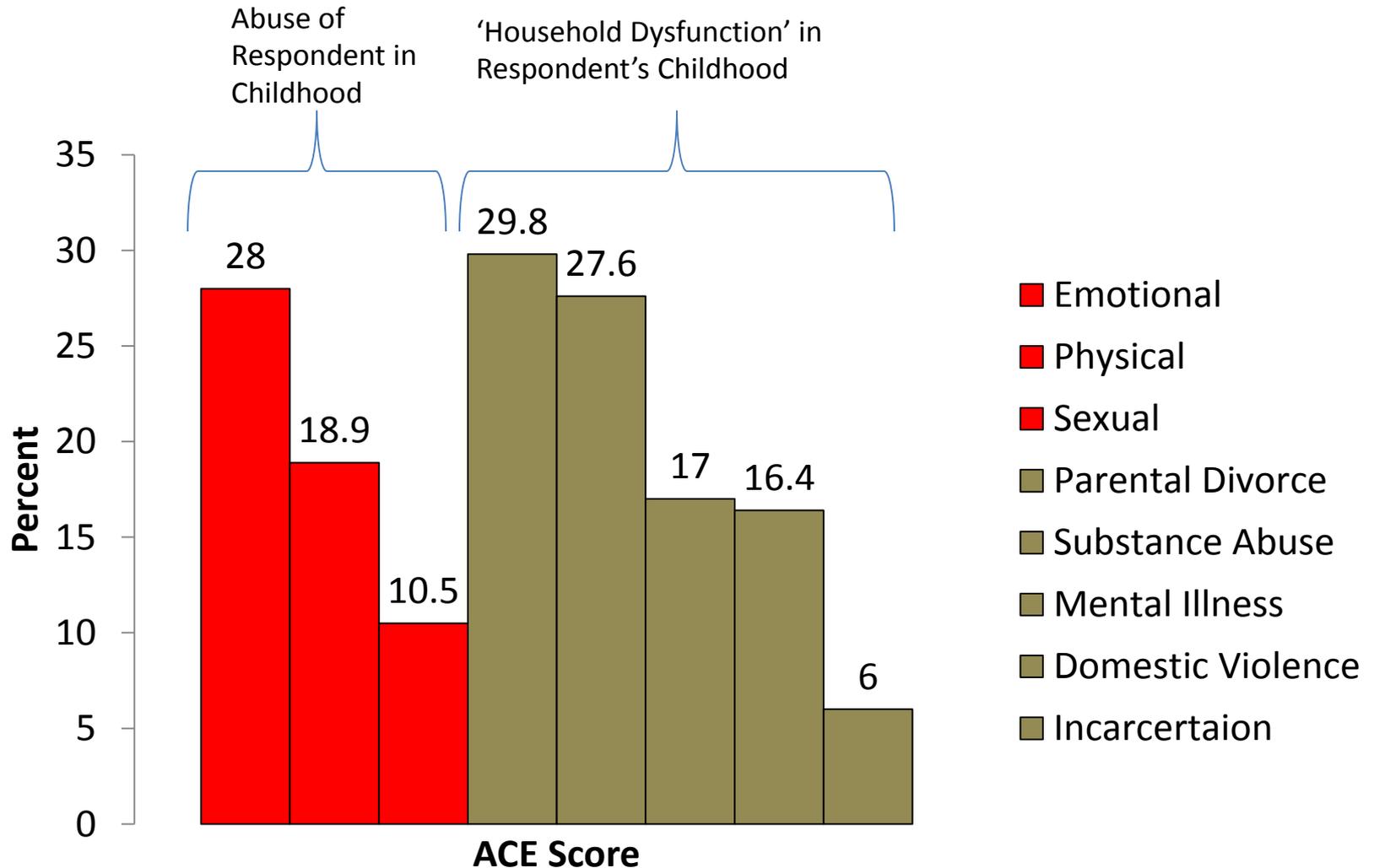
ACE SCORE (Shortened Questionnaire) Colorado Adults 2014



Watamura, S.E., 2016.
Report prepared for the
Office of Early Childhood,
State of Colorado.



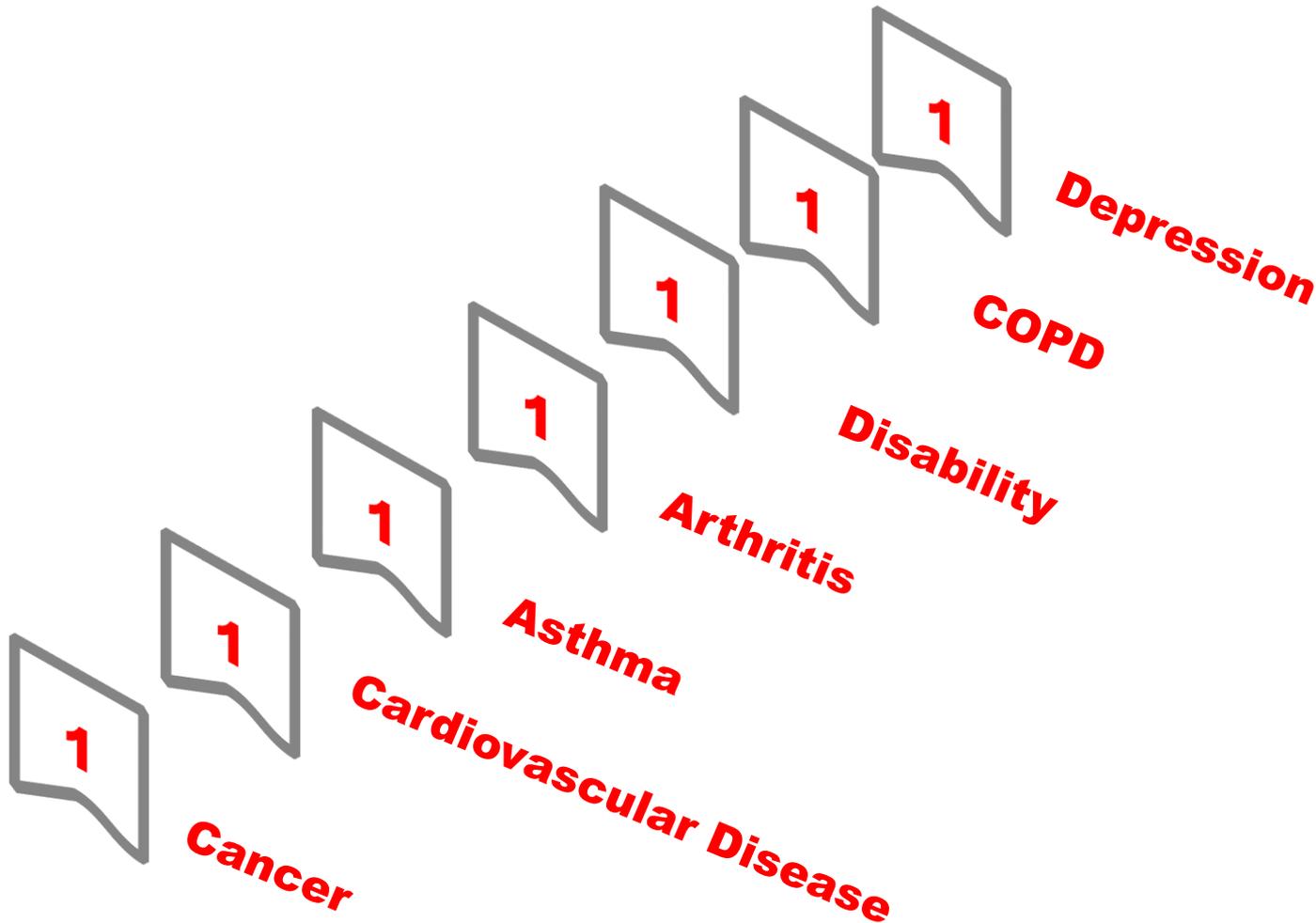
% of Adult Coloradans Reporting Each Type of ACE



ACE Score Hurdles



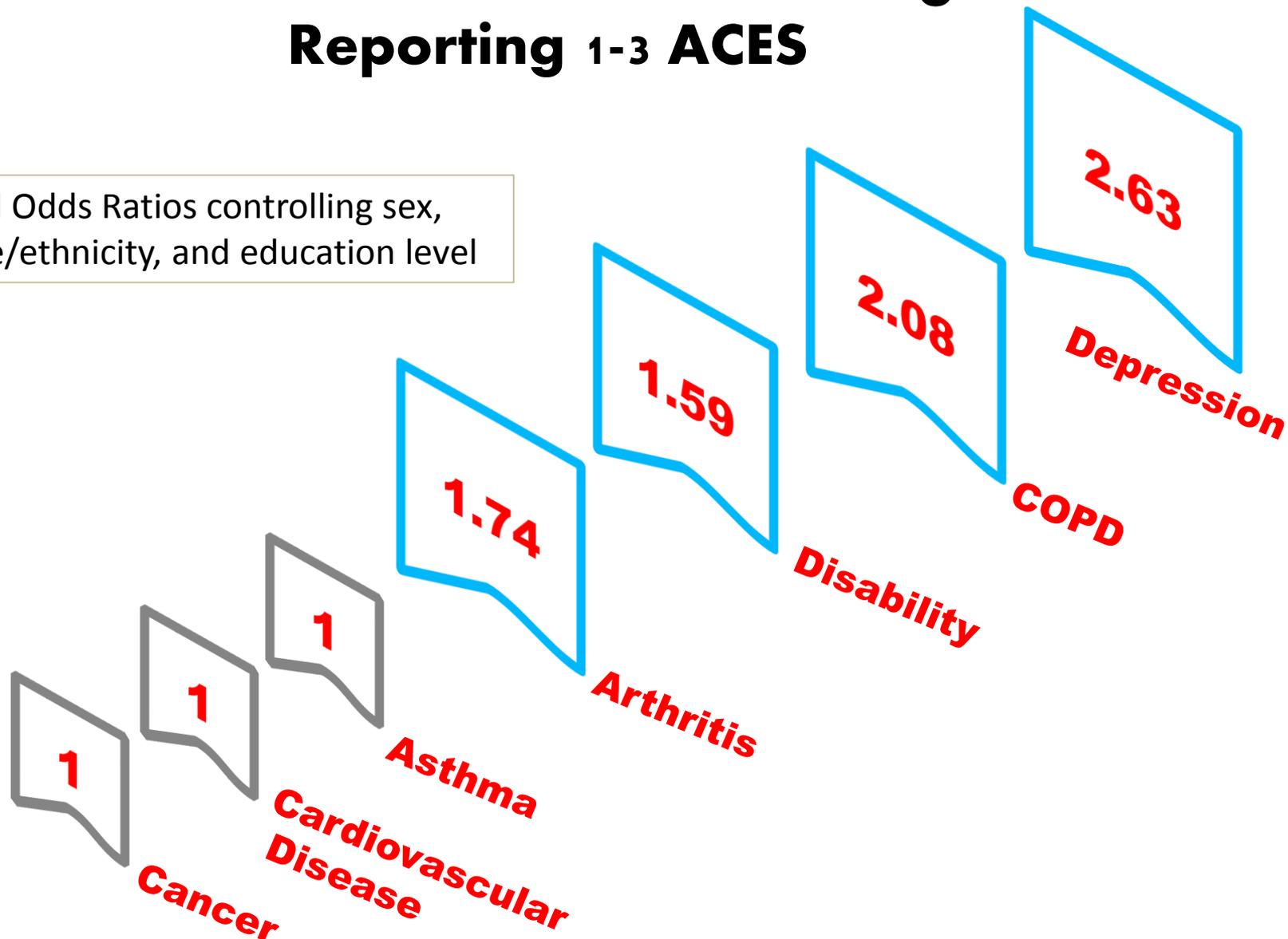
Setting the Odds to 1 for Chronic Conditions Among Adults Reporting No ACEs



Adjusted Odds Ratios controlling sex, age, race/ethnicity, and education level

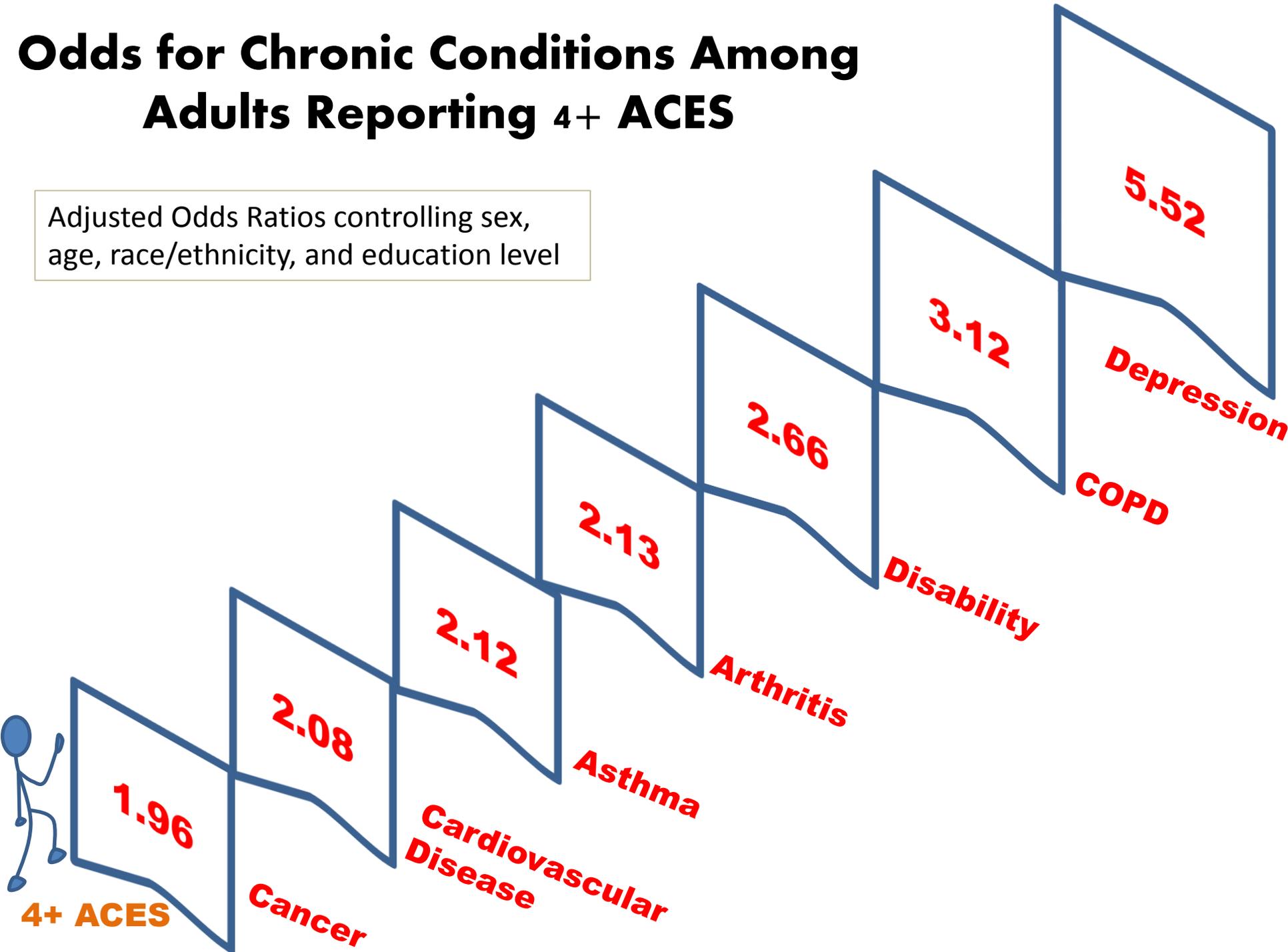
Odds for Chronic Conditions Among Adults Reporting 1-3 ACEs

Adjusted Odds Ratios controlling sex, age, race/ethnicity, and education level

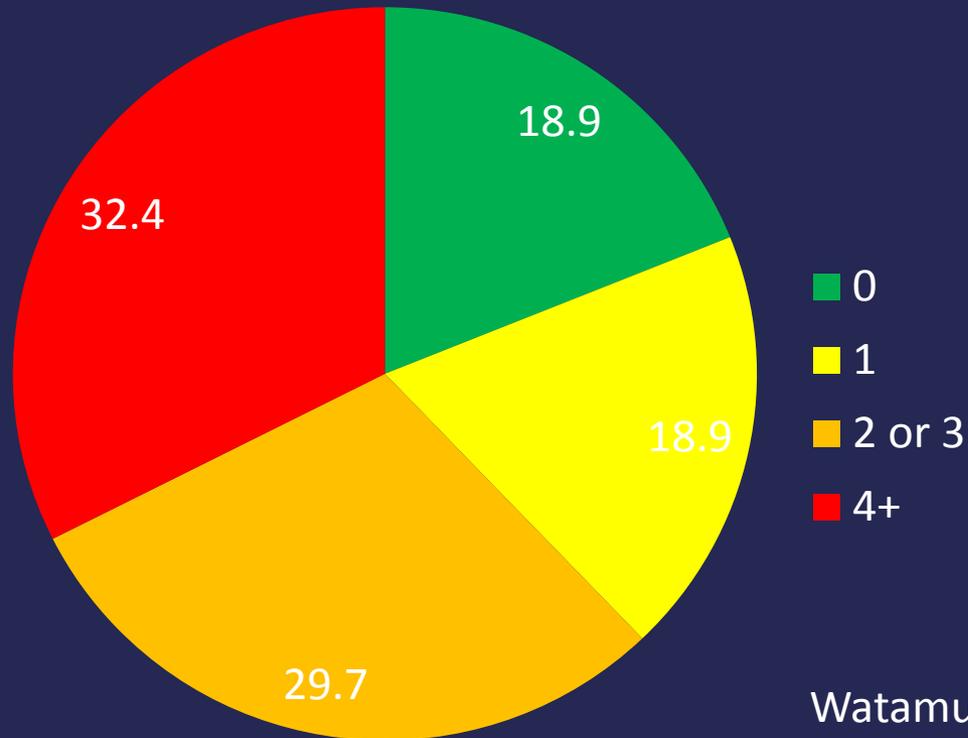


Odds for Chronic Conditions Among Adults Reporting 4+ ACEs

Adjusted Odds Ratios controlling sex, age, race/ethnicity, and education level



ACE SCORE (original questionnaire) Denver Early Head Start Sample (n=148)



Watamura et al., 2016



Cohort 1: Cross-Correlations of Risk Variables

	2	3	4	5	6	7	8	9	10	11
1. ACE Score	.304***	.349***	.152 ⁺	.350***	.467***	.269**	.224*	.191*	.326***	.139
2. Hardship		.473***	.290**	.203**	.248**	.155 ⁺	.056	.181*	-.011	.030
3. Pressure			.407***	.248**	.359***	.139	.055	.081	.004	.096
4. Need				.269**	.227**	.122	-.234*	.137	-.032	-.012
5. Depression					.742***	.422***	.179	.293**	.246**	.200*
6. Anxiety						.432**	.216	.288**	.325***	.346***
7. Parenting Stress							.031	.369***	.488***	.424***
8. Cog. Flexibility								.048	.180	-.195
9. Internalizing									.570***	.222*
10. Externalizing										.235*
11. Stressful Neg. Behaviors										

Note. *= $p < .05$, **= $p < .01$, ***= $p < .001$

Resilience



THE MOST IMPORTANT RESOURCE?

- Buffering Relationships



Does Resilience mean no Consequences?

- Or does it mean adaptation in the short run, that might have long term consequences?

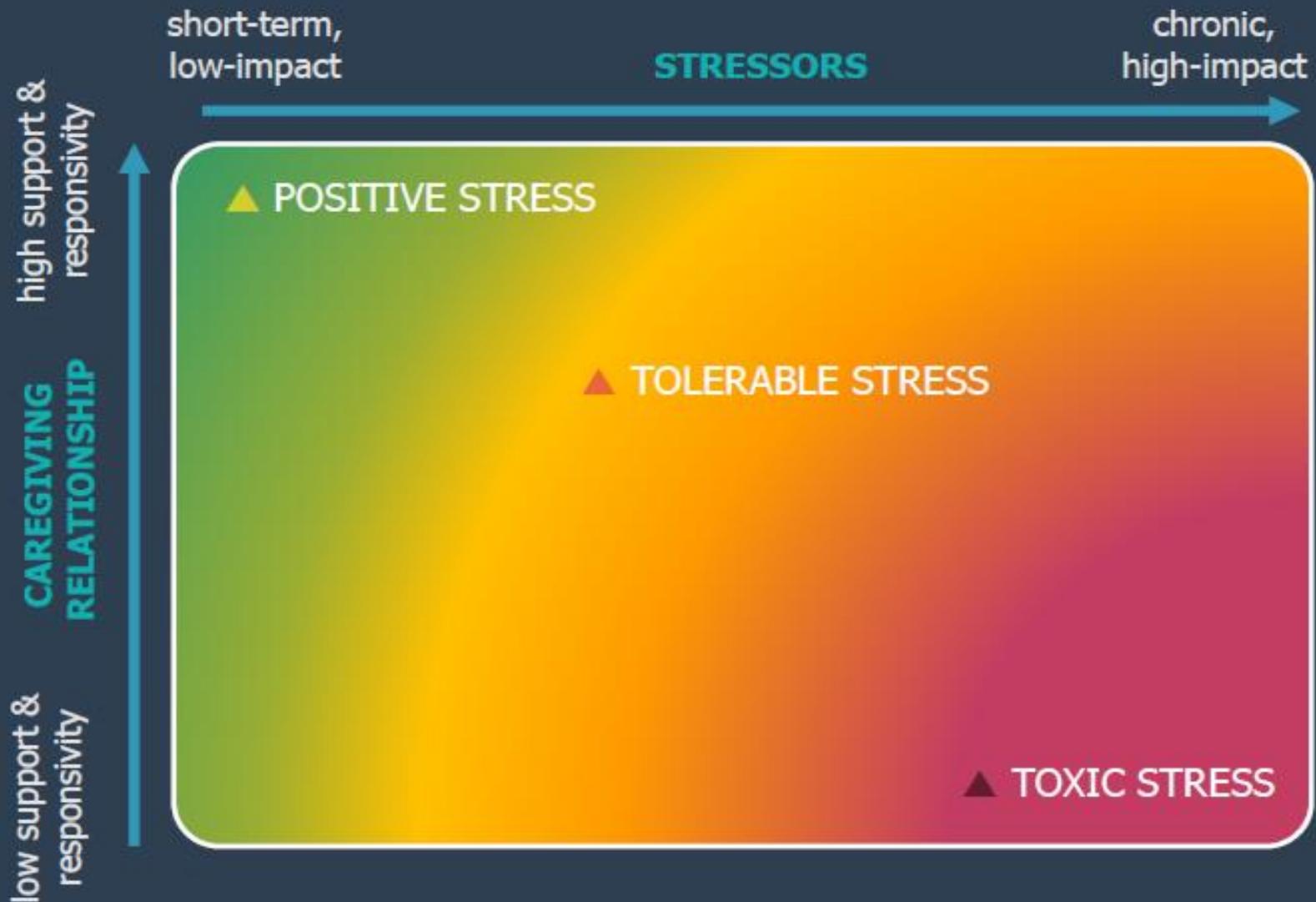


The “Toxic Stress” Framework

- A framework offered by:
 - pediatrician Jack Shonkoff
 - pediatrician and researcher Tom Boyce
 - basic science researcher Bruce McEwen
 - (Shonkoff, Boyce & McEwen, 2009)

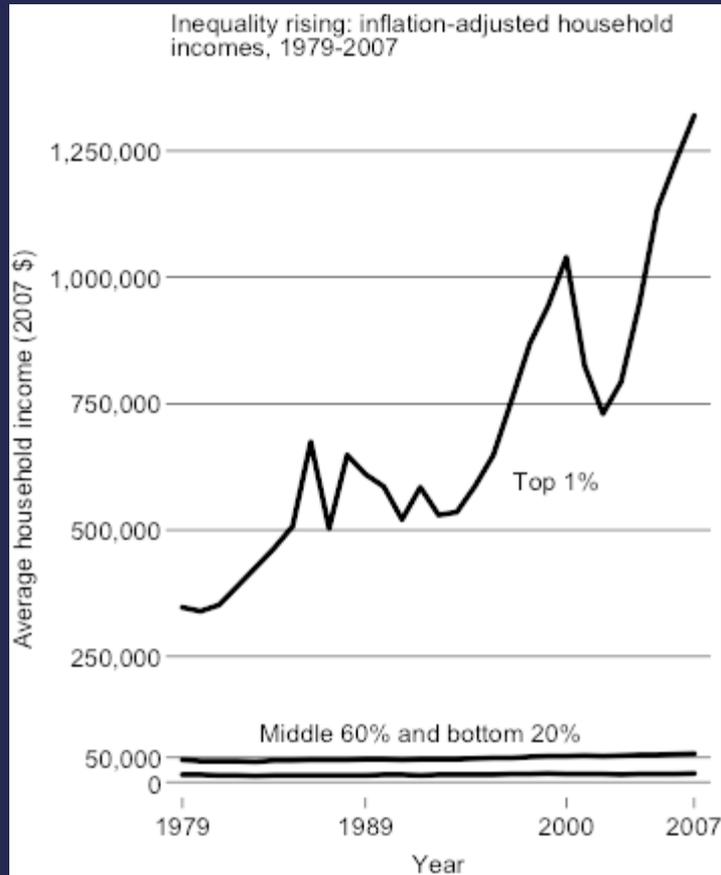


● CONDITIONS *for* TOXIC STRESS

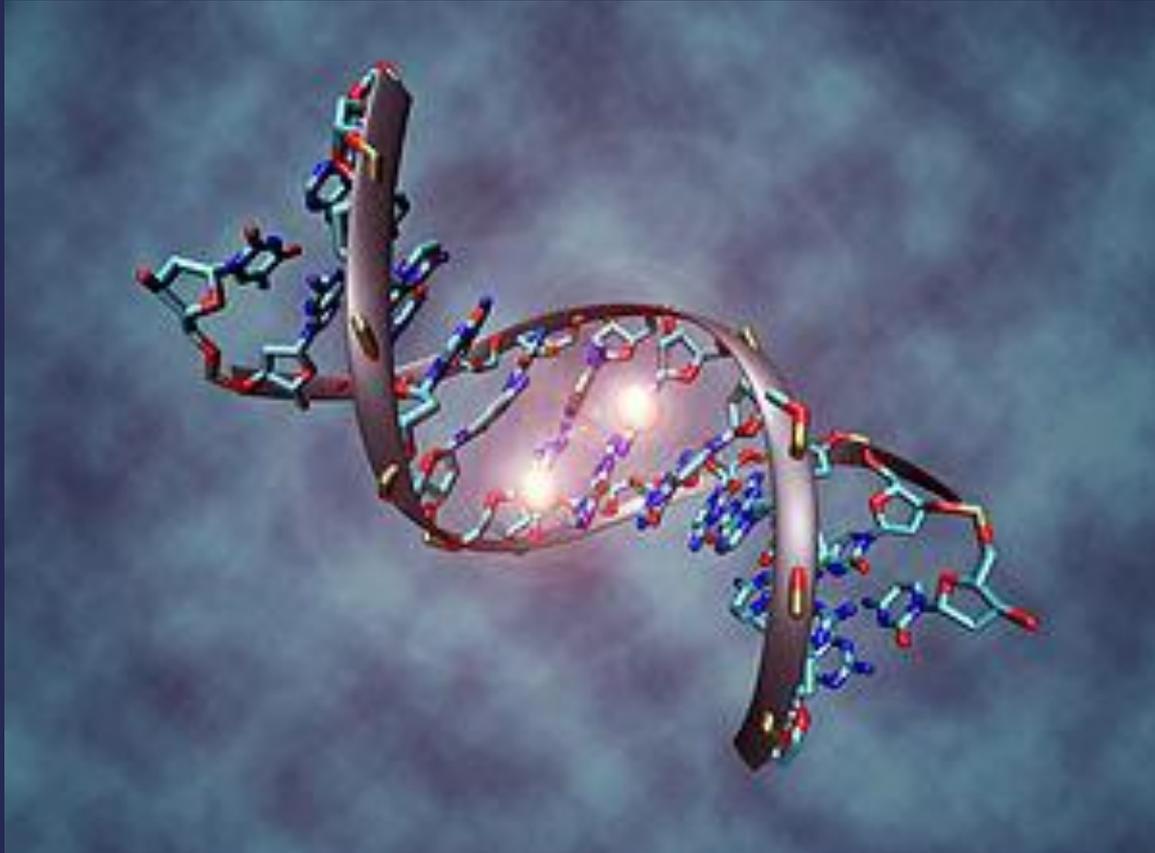


How are Negative Life Events and their Consequences Perpetuated Generation to Generation?

- Socio-culturally



Epigenetically



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 - If this wasn't true, how would heart cells differ from brain cells etc.?

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- A number of processes mark genes for activation or inactivation, collectively epigenetic processes (on top of the genome)

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 - If this wasn't true, how would heart cells differ from brain cells etc.?
- A number of processes mark genes for activation or inactivation, collectively epigenetic processes (on top of the genome)
- These markers are controlled/sensitive to illness, stress and toxin exposure, environmental supports etc.
- These markers CAN also be inherited across at least a few generations

Historical Trauma

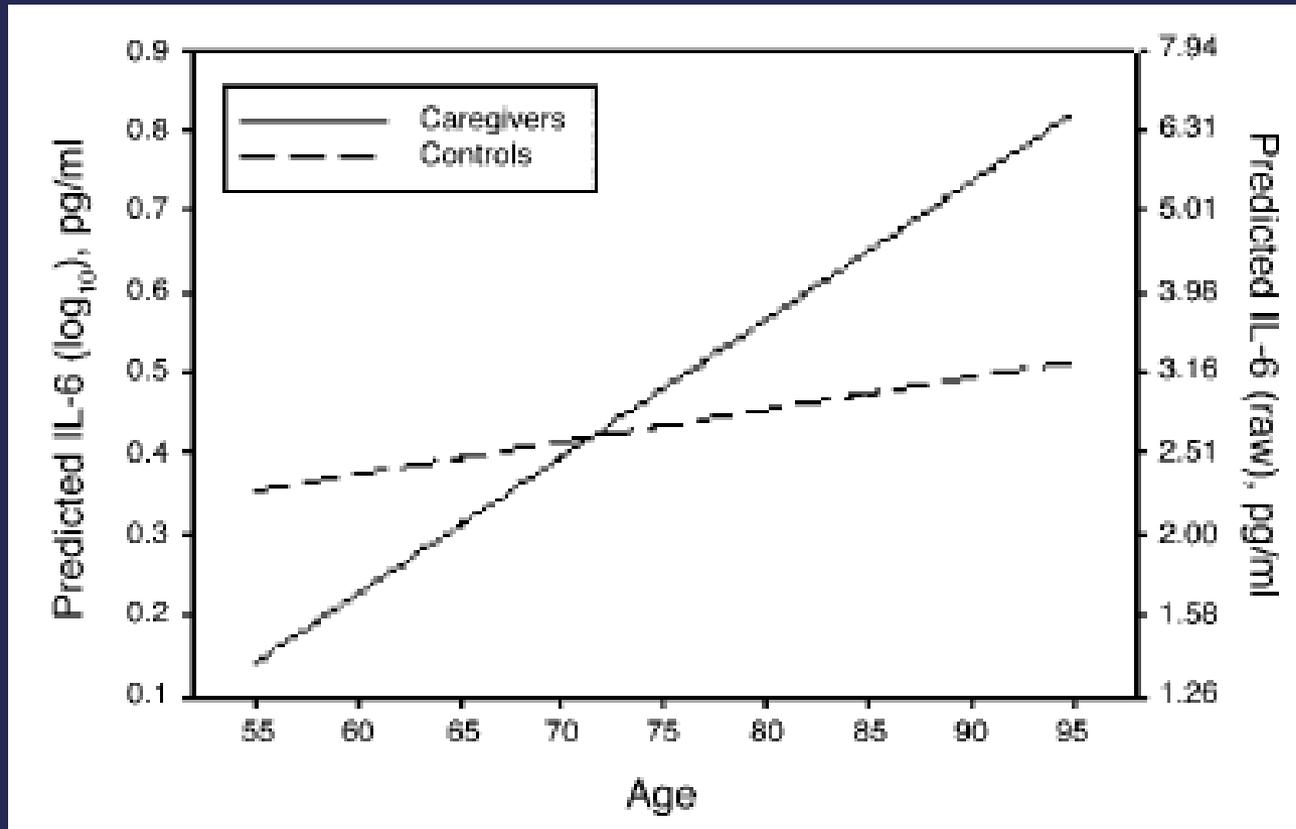
Talking about
intergenerational
trauma

To understand how to
move forward, we must
first talk about what
has happened

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Accelerated Aging In Caregivers



Kiecolt-Glaser et al, 2003 PNAS

Similar results from the MIDUS Study

- Caring for a biological or adoptive parent is associated with clinically assessed biological risk factors for allostatic load
 - Inflammatory dysfunction
 - Metabolic dysfunction
 - Neuroendocrine dysfunction

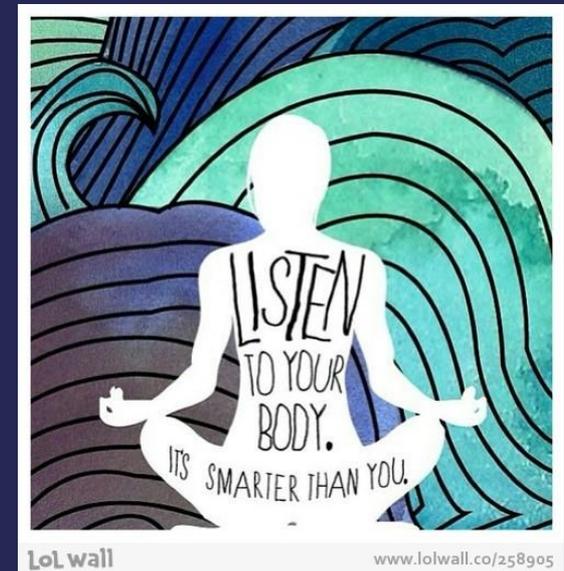
Kang & Marks, 2014, SAGE Open Medicine

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Stress Management Tips

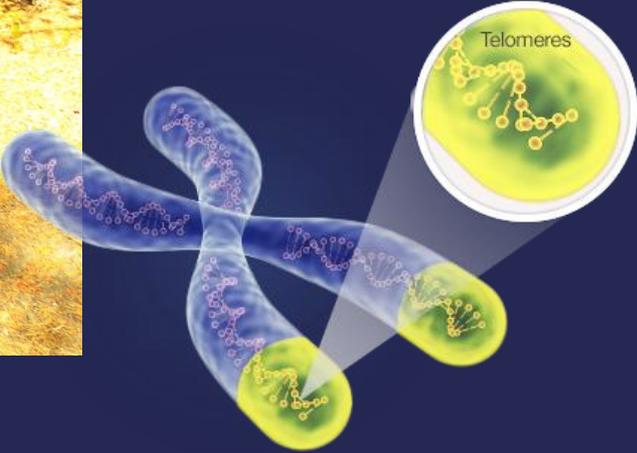
- Exercise
- Meditate/Center
- Cognitive Strategies
- Reduce recurrent infections
- Sleep better
- Keep your glucose levels even
- Choose your audience



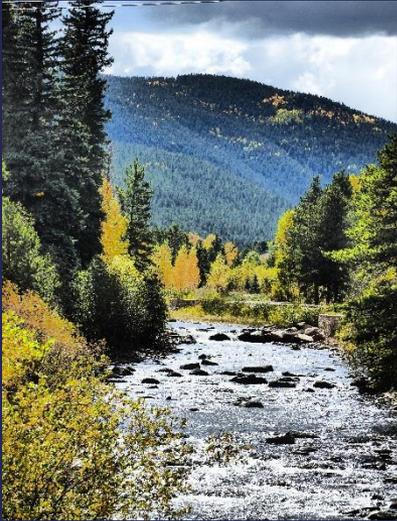
Exercise



Exercise



Mediate/Center



INHALE

EXHALE

Cognitive Strategies

- CBT
- Radical Acceptance
- Cognitive Reappraisal
- Mental Distancing



Reduce Recurrent Infections

- Do you get sick for 1-3 days repeatedly, or when you are sick does it drag on?
- Are you using hygiene just to protect them, or also to protect yourself?
- Are you following grandma's advice?
- Are you using broadband medications when sick?
- At the very first sign of illness, are you taking care of you?



Drug Facts	
Active ingredient Triclosan 0.46%	Purpose Antibacterial
Use For handwashing to decrease bacteria on the skin.	



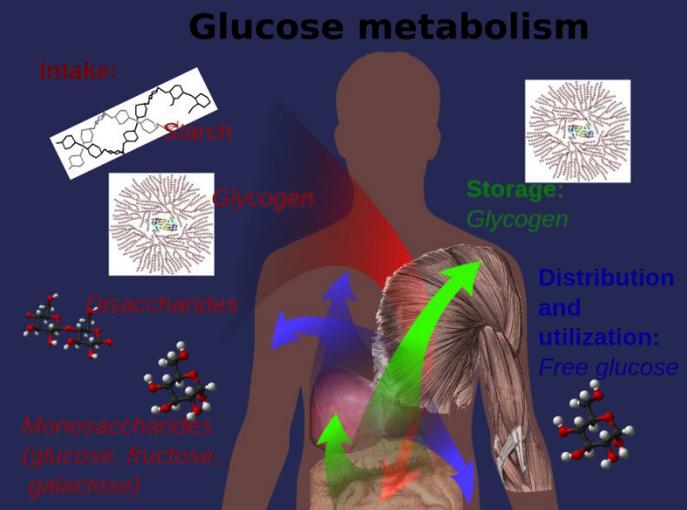
Sleep Better: Sleep Hygiene 101

- Trouble falling asleep?
 - Create a bedtime ritual (even a short one)
 - Make a list before bed, then put it aside
 - Take a warm bath
 - Natural light exposure in the afternoon
- Trouble staying asleep?
 - Avoid alcohol at least 2 hours before bedtime
 - Wean yourself off sleep aids
 - Be sure you aren't collapsing into sleep exhaustion above (asleep in less than 15 minutes), then awaking to the troubles you left at bedtime
 - Keep a consistent bed and wake time



Keep your Glucose Levels Even

- Glucose is what you use for energy
- If your levels skyrocket and plummet, your body has to recruit processes to handle the excess (or lack of) fuel
- Listen to how this makes you feel
- Instead, consider giving it an even supply:
 - No “unsupervised” carbohydrates
 - No simple sugars
 - Food with staying power, especially for breakfast choose a protein
 - Less processed foods



Choose the Audience for your Life



What else works for you?

