



Learning Exchange: Epigenetics

April 1, 2022



Dana Brown
PACEs Connection,
Organizational Liaison

Learn4Life, PACEs Science
Statewide Facilitator

Tri-Chair, San Diego
Trauma-Informed Guide Team

DBrown@pacesconnection.com

Cell: (858)472-2321



What is Epigenetics?

[What is Epigenetics? | CDC](#)

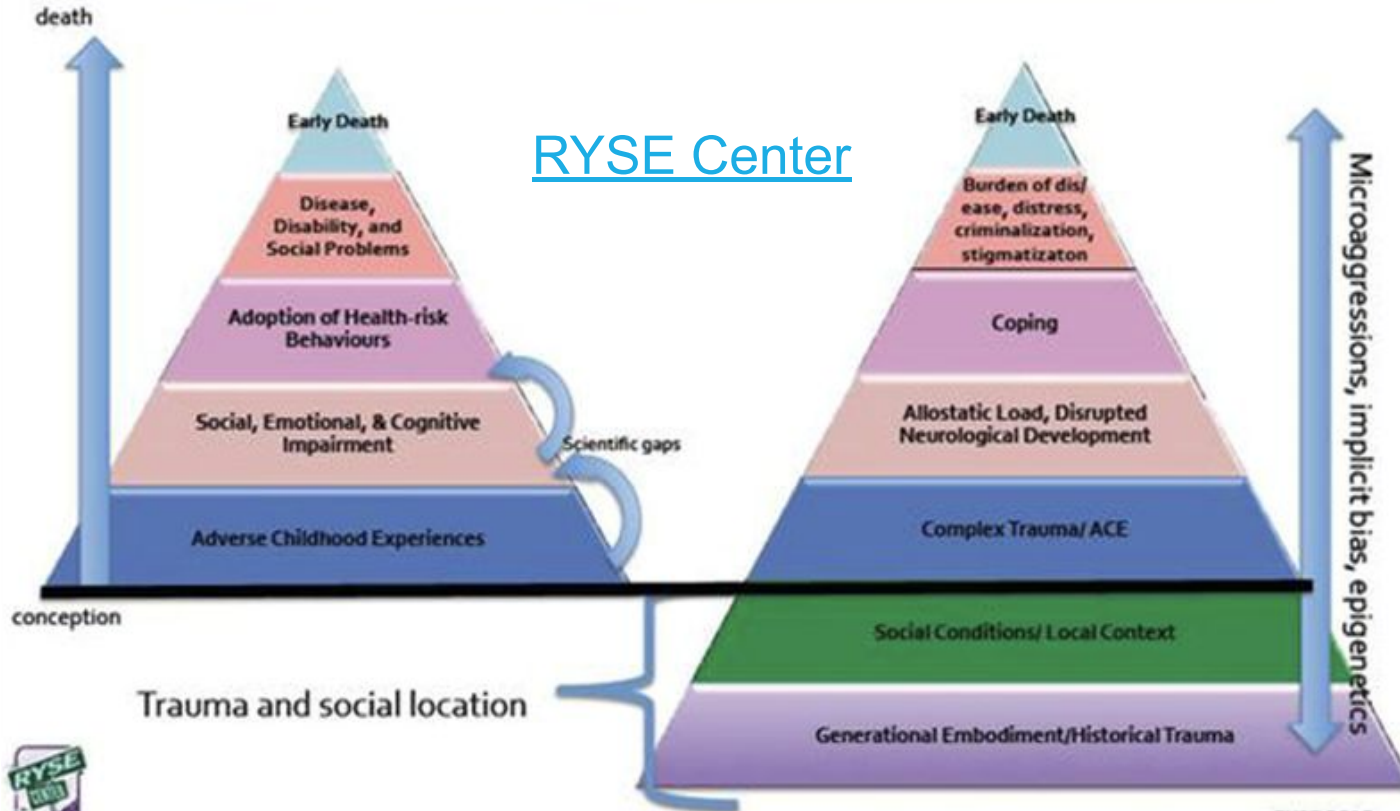
Epigenetics is the study of how your behaviors and environment can cause changes that affect the way your genes work.



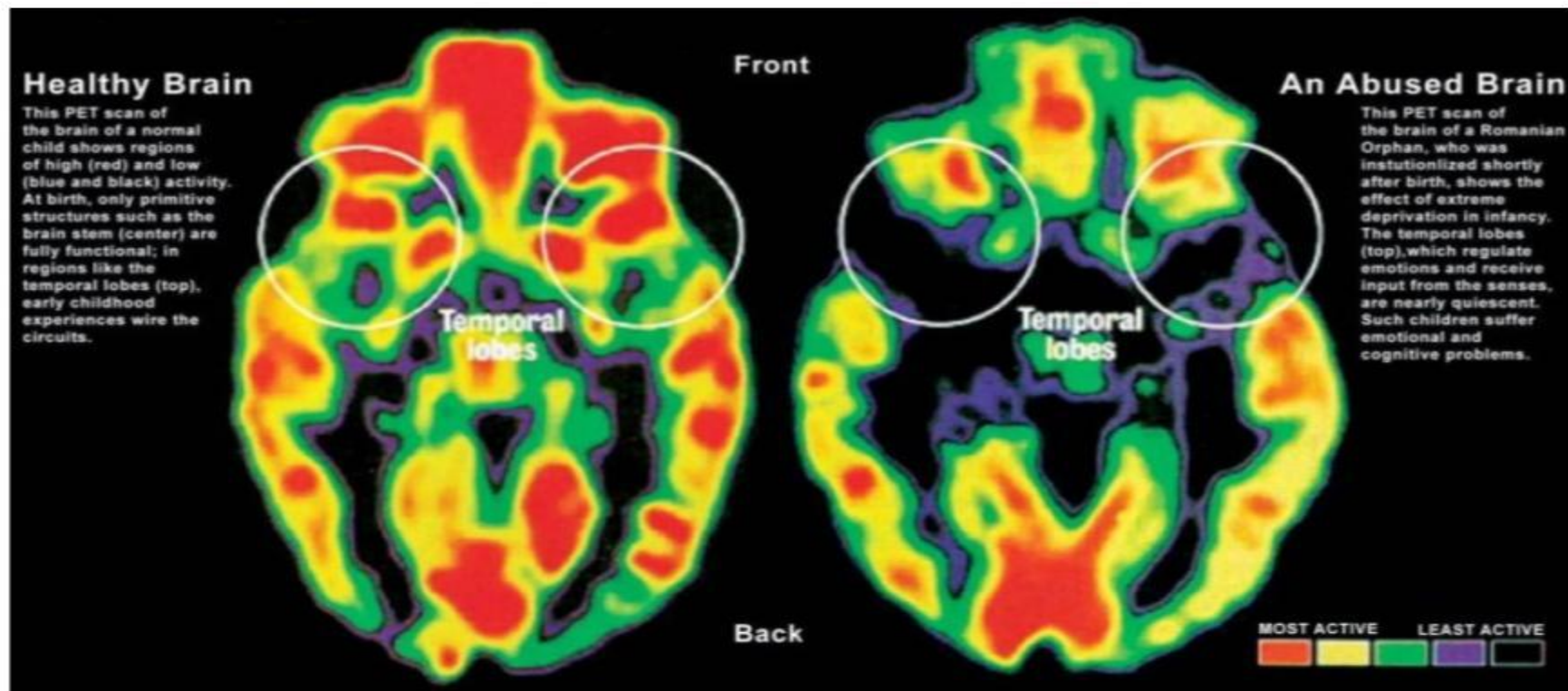
Trauma and Social Location

Adverse Childhood Experiences

Historical Trauma/Embodiment



The impact of stress on our brain



Source: Dr. Harry Chugani M.D., Chief, Division of Pediatric Neurology, Director, *Positron Emission Tomography* (PET) Center, Children's Hospital of Michigan



[Source: Image](#)

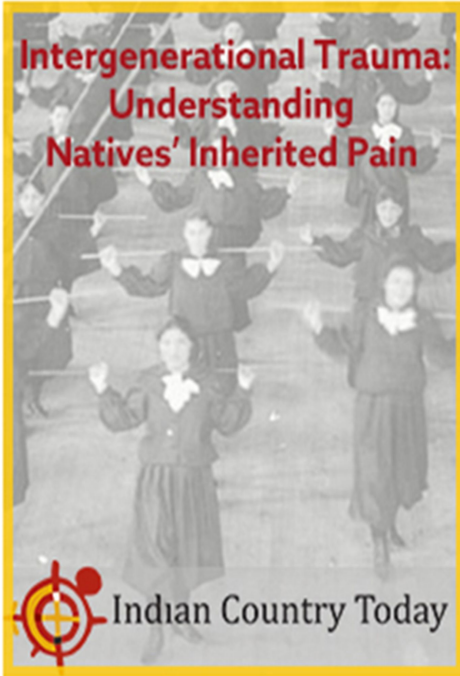
Epigenetics

- Trauma is capable of changing genetic material.
 - **Telomere shortening** [Telomere shortening rate predicts species life span - PubMed \(nih.gov\)](#)
 - Children exposed to childhood trauma had shorter *telomeres*, protective caps at the ends of chromosomes.
 - Shorter telomeres are correlated with several chronic diseases, cognitive impairment, and mental health disorders.
 - **Epigenetic marks** [Epigenetics: Definition, Mechanisms and Clinical Perspective \(nih.gov\)](#)
 - Chemical modifications, also known as DNA methylation, change gene expression by silencing or activating genes.
 - DNA methylation is an epigenetic mechanism that modifies the function of the genes and affecting gene expression, which can alter fundamental biological processes and adversely affect health outcomes throughout life.

Rewiring our Brain



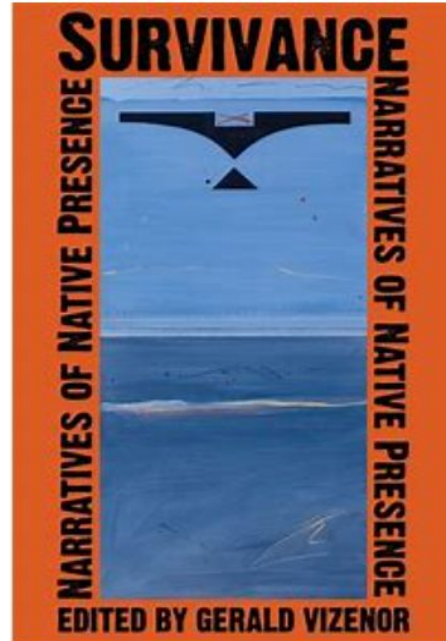
Intergenerational Transmission of Survivance

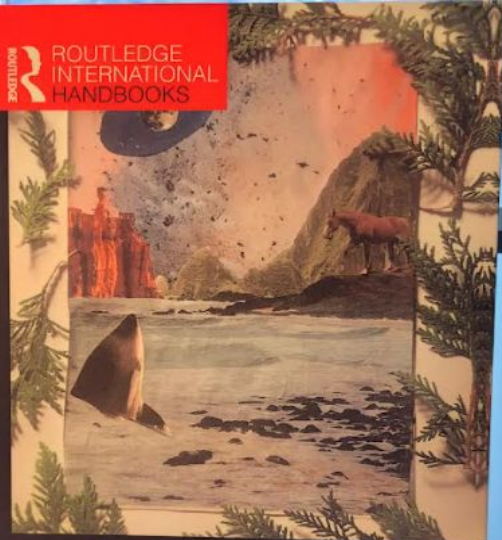


“Scientific developments such as epigenetics can offer exciting new insights not only into how our bodies react not only to trauma but also how we manage to survive it.

Native peoples ability to maintain culture and sense of who they are in the face of such a traumatic history suggests an inherited resilience that bears scientific examination as well, according to Gone.”

-Mary Annette Pember, Intergenerational Trauma: Understanding Natives' Inherited Pain,
<https://amber-ic.org/wp-content/uploads/2017/01/ICMN-All-About-Generations-Trauma.pdf>





The Routledge International Handbook of Indigenous Resilience

Edited by Hilary N. Weaver

The Routledge International Handbook of Indigenous Resilience

23
IGNITING THE WARRIOR
SPIRIT TO ADDRESS
HISTORICAL TRAUMA
AMONG INDIGENOUS PEOPLE
Tasha Seneca Keyes and Kenneth G. White Jr.

Indigenous Nations & Peoples

← HOME BLOG RESOURCES CALENDAR ASK THE COMMUNITY SURVEYS CHATS MEMBERS 🔍 + 🌐 🏠

DANA BROWN (PAC... 11

PACESCONNECTION / COMMUNITIES / INDIGENOUS NATIONS & PEOPLES / BLOG
/ CALLING UPON THE WARRIOR SPIRIT TO HEAL HISTORICAL TRAUMA: CEREMONY & CONFERENCE (SAN DIEGO, CA)

Calling Upon the Warrior Spirit to Heal Historical Trauma: Ceremony & Conference (San Diego, CA)

Post

- 🗨 Add Comment
- 🔗 Copy Link to Blog Post
- ⚙ Manage Blog Post
- ☰ Configure Blog
- 👤 Leave Community

DANA BROWN (PACES CONNECTION STAFF) ● 9/4/18 @ 4:23 PM

WARRIOR SPIRIT CONFERENCE AND CEREMONY

Calling Upon the Warrior Spirit, Inspired by Our Creator,
to Heal Historical Trauma Among Native America
Through Indigenous Wisdom
Conference and Ceremony
October 8th, 9th & 10th 2018

Conference Moderator: **Anthony R. Pico, Ph.D., Viejas Band of Kumeyaay Indians**

Keynote Speaker: Dr. Vincent J. Felitti,
Adverse Childhood Experiences Study (ACEs) Co-Principal Founder

Youth & Elder Panels - Spoken Word Poetry
Sweet Lodge Ceremony - Traditional Healing Circle
Foundations of Resiliency - Talking Circle Ceremony
Creating Trauma-Informed Communities and Schools
Link between Trauma and Addiction
Legal Update - ACEs Science
Indigenous Leadership Practices - Bird Singing
"Call to Action" Networking Event

Calling Upon the Warrior Spirit to Heal Historical Trauma Conference and Ceremony

October 8, 9 & 10, 2018
Viejas Resort & Casino, Alpine, CA

Hosted by: Viejas Band of Kumeyaay Indians

MANAGE WIDGETS ON BLOG PAGES

Blog Archive

February 2022 (0)	February 2021 (5)
January 2022 (2)	January 2021 (26)
December 2021 (8)	December 2020 (13)
November 2021 (28)	November 2020 (13)
October 2021 (15)	October 2020 (10)
September 2021 (3)	September 2020 (10)
August 2021 (8)	August 2020 (8)
July 2021 (13)	July 2020 (11)
June 2021 (7)	June 2020 (7)
May 2021 (18)	May 2020 (11)
April 2021 (17)	April 2020 (13)
March 2021 (12)	March 2020 (6)

Collections

- Sovereignty
- Missing and Murdered Indigenous Women

Positive Childhood Experiences - The Science of Hope



California Essentials for Childhood Initiative (CA)

The California Essentials for Childhood Initiative uses a public health and collective impact approach to align and enhance collaborative efforts to promote safe, stable, nurturing relationships and environments for children, youth and families through systems, policy and social norms change.

HOME BLOG TOPICS MEMBERS

DANA BROWN (PAC... 91

PACESCONNECTION / COMMUNITIES / CALIFORNIA ESSENTIALS FOR CHILDHOOD INITIATIVE (CA) / BLOG / POSITIVE CHILDHOOD EXPERIENCES AND ADULT MENTAL AND RELATIONAL HEALTH IN A STATEWIDE SAMPLE: ASSOCIATIONS ACROSS ADVERSE CHILDHOOD EXPERIENCES LEVELS [JAMANETWORK.COM]

Positive Childhood Experiences and Adult Mental and Relational Health in a Statewide Sample: Associations Across Adverse Childhood Experiences Levels [jamanetwork.com]

RAFAEL MARAVILLA(PACES CONNECTION STAFF) 9/17/19 @ 8:40 AM



By Christina Bethell, Jennifer Jones, Narangerel Gombojav, et al., JAMA Pediatrics, September 9, 2019

Post

- Add Comment
- Manage Blog Post
- Configure Blog
- Leave Community

MANAGE WIDGETS ON BLOG PAGE

Collections

- Webinars
- Awareness
- Resources
- Data Resources
- Initiative Documents & Reports
- CDC Resources
- Overview of CA Essentials for Childhood

BLOG DIRECTORY

Comments

jeffrey Gordon commented:
I am so excited Rozhan is working on this. The data on child fatalities has been of such poor quality that it is hard to make good...

JG

jeffrey Gordon commented:
These are well considered, explicit detailed reviews with excellent guidance for maximizing the benefits of social, family and

JG

- [Positive Childhood Experiences and Adult Mental and Relational Health in a Statewide Sample: Associations Across Adverse Childhood Experiences Levels \[jamanetwork.com\]](#) | California Essentials for Childhood Initiative (CA) | PACEsConnection

Engagement:

What is one thing you like to do as a family outside the home? Where do you feel the most connected to others?

Environment:

Describe a place you love to go or play. Where is your safe space?

Relationships:

What do you like to do at home with your family? Who is someone outside of your family that really cares about you?

Emotional Health:

What feelings do you talk about at home? Who can you talk to about feelings with? How can you take care of yourself when you have big feelings?

- 1) Positive Childhood Experiences (PCE)
- 2) Benevolent Childhood Experiences
- 3) The Four Building Blocks of Hope
- 4) Narrative Therapy Techniques

[Four Ways to Assess Positive Childhood Experiences](#)

Epigenetics Resource Slide

- [What is Epigenetics? | CDC](#)
- [RYSE Center Trauma and Social Location](#)
- [Telomere shortening rate predicts species life span - PubMed \(nih.gov\)](#)
- [Epigenetics: Definition, Mechanisms and Clinical Perspective \(nih.gov\)](#)
- <https://amber-ic.org/wp-content/uploads/2017/01/ICMN-All-About-Generations-Trauma.pdf>
- [Positive Childhood Experiences and Adult Mental and Relational Health in a Statewide Sample: Associations Across Adverse Childhood Experiences Levels \[jamanetwork.com\] | California Essentials for Childhood Initiative \(CA\) | PACEsConnection](#)
- [Four Ways to Assess Positive Childhood Experiences](#)
- [Balancing ACEs with HOPE](#)
- [The Routledge International Handbook of Indigenous Resilience](#)
- [Intergenerational Trauma and the Promise of Healing](#)