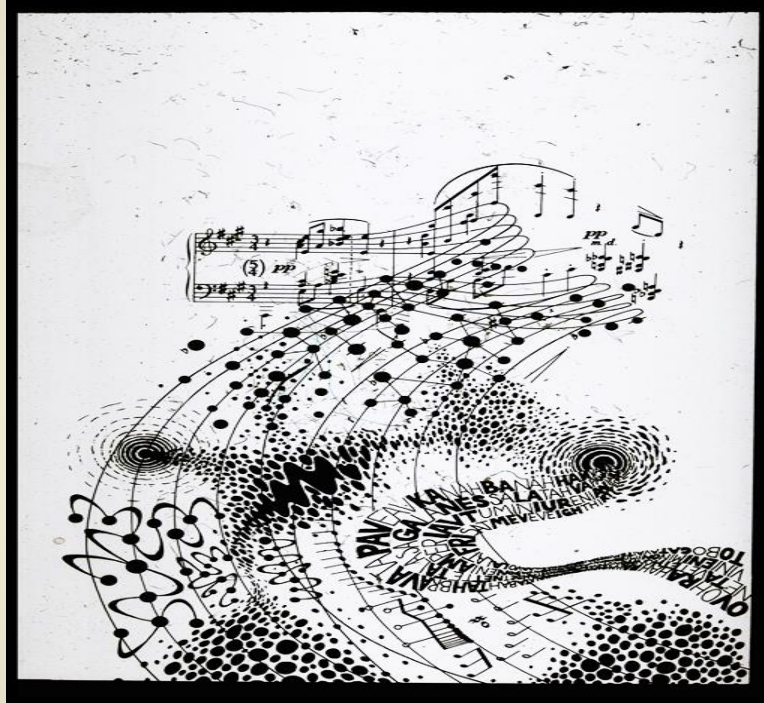


PERFORMANCE EXPOSURE THERAPY

TWELVE-TONE TUNE UP TARGETS



JOHN CHONG MD BASc MSc DOHS FRCPC FACPM MDPAC(C) ARCT

MUSICIANS' CLINICS OF CANADA

PERFORMING ARTS MEDICINE ASSOCIATION

McMaster University/University of Toronto

Canada Health Act 1984

Organization
Of
Canadian
Symphony
Musicians

1986

Muscle Fatigue

Anxiety

Depression

Nerve

Entrapment

Stress

Syndrome

Musicians'
Clinics
of
Canada

2023

Universality Accessibility Portability

PERFORMING
ARTS
MEDICINE
ASSOCIATION

IMPROVING
THE
WELL BEING
OF
PERFORMING
ARTISTS

1983
Dr Alice
Brandfonbrener



PLATE 6

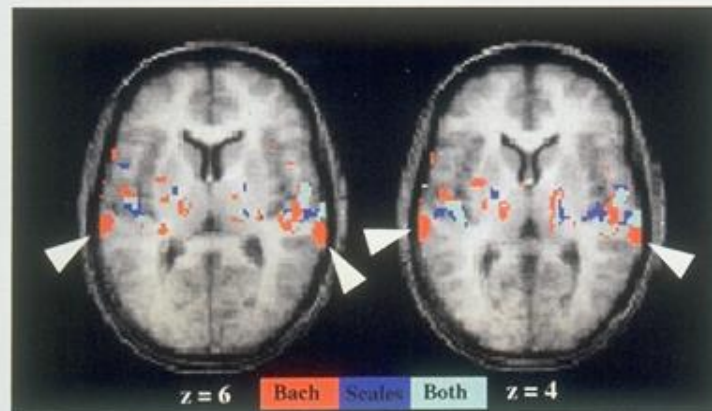


PLATE 7

PHYSICIANS
AUDIOLOGISTS
THERAPISTS
TRAINERS
EDUCATORS
RESEARCHERS
PERFORMERS
ADMINISTRATORS
STUDENTS

(artsmed.org)

Medical
Problems
of
Performing
Artists

AWARENESS OF PERFORMANCE STRESS



NEUROBIOLOGY OF INJURY AND ILLNESS

PERFORMING ARTISTS' INCOMES

Kelly Hill presentation at
Toronto PAMA Regional Meeting 2015

- Actors and comedians \$17,480
- Dancers \$12,641
- Musicians and singers \$15,880
- Other performers \$14,810

(Source: 2011 National Household Survey Canada)

84% Lifetime Prevalence of Injury

50/50 chance of playing hurt

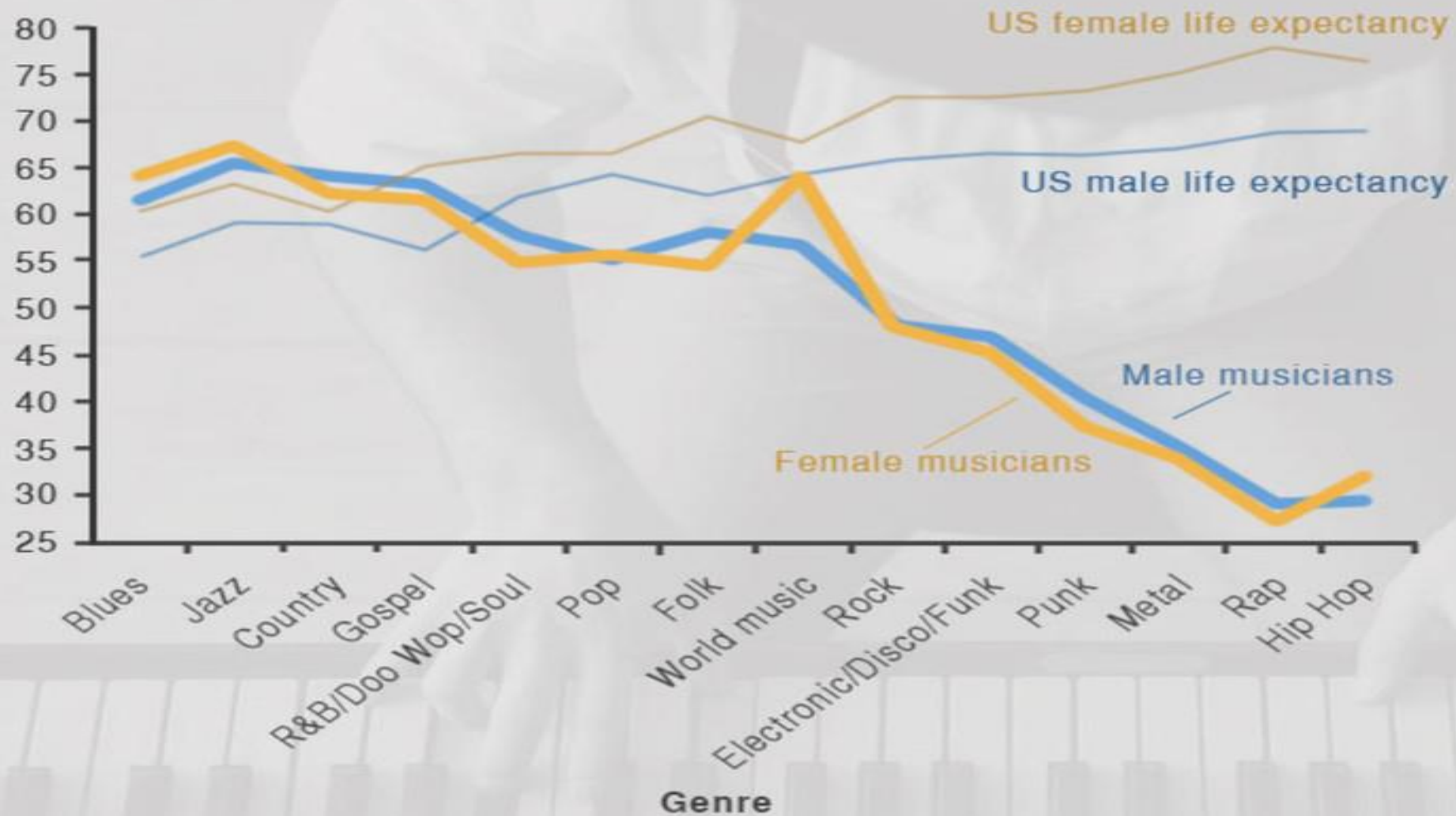
Common risk factors for musicians

- Excess muscle tension: 82.4 per cent
- Long practice sessions: 82.0 per cent
- Insufficient rest: 80.5 per cent
- Poor posture: 77.9 per cent
- Muscle fatigue: 76.8 per cent
- Sudden increase in playing: 75.5 per cent
- Repertoire scheduling: 71.7 per cent
- Stress: 69.6 per cent
- Lack of fitness: 67.0 per cent
- Insufficient warm-up: 66.7 per cent

Age of death and musical genre

Average age of death for popular musicians by genre and sex

Average age at death



Life expectancy data from: <http://demog.berkeley.edu/~andrew/1918/figure2.html>

Cause of death by genre

Various causes of death for musicians of different genres

	Accidental	Suicide	Homicide	Heart-related	Cancer
% deaths per cause	19.5%	6.8%	6.0%	17.4%	23.4%
Blues	9.2%	2.0%	3.5%	28.0%	24.2%
Jazz	10.6%	2.7%	1.9%	20.7%	30.6%
Country	15.8%	4.7%	1.6%	23.5%	25.1%
Gospel	13.3%	0.9%	3.6%	18.5%	23.0%
R&B	11.5%	1.6%	5.0%	23.2%	26.8%
Pop	19.0%	6.4%	2.9%	16.4%	26.7%
Folk	15.9%	5.5%	4.4%	15.3%	32.3%
World music	12.7%	3.4%	9.6%	17.8%	19.9%
Rock	24.4%	7.2%	3.6%	15.4%	24.7%
Electronic	16.7%	5.0%	10.0%	15.0%	25.0%
Punk	30.0%	11.0%	8.2%	12.6%	18.3%
Metal	36.2%	19.3%	5.9%	11.0%	14.1%
Rap	15.9%	6.2%	51.0%	6.9%	7.6%
Hip Hop	18.3%	7.4%	51.5%	6.1%	6.1%

Red: significantly above the overall average rate for cause of death

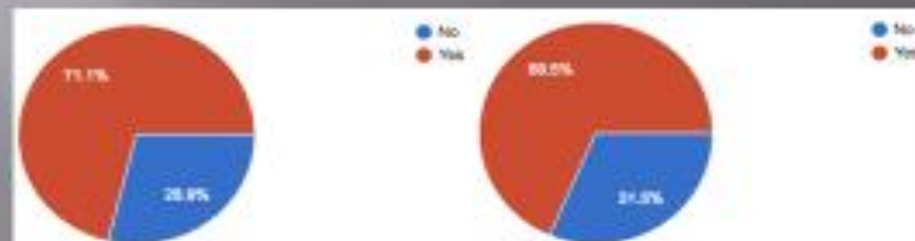
Blue: above the overall average rate for cause of death

Green: significantly below the overall average rate for cause of death

Note: not all causes shown

MUSICIANS MAY BE UP TO THREE TIMES MORE LIKELY TO SUFFER FROM ANXIETY AND DEPRESSION COMPARED TO THE PUBLIC

Have you ever suffered from panic attacks and/or high levels of anxiety?



Have you ever suffered from depression?

HELP MUSICIANS UK SURVEY OF 2,211 MUSICIANS (2016)

- Poor working conditions including: difficulty sustaining a living, anti-social working hours, exhaustion and inability to plan their time/future
- A lack of recognition for one's work and the welding of music and identity into one's idea of selfhood
- The physical impacts of a musical career (such as musculoskeletal disorders)
- Issues related to the problems of being a woman in the industry - from balancing work and family commitments, to sexist attitudes and even sexual harassment

Working in the Australian Entertainment Industry

Dr J van den Eynde, Prof A Fisher, Assoc Prof C Sonn; Victoria University; October 2016

WHO PARTICIPATED:

2904 Respondents across all sectors of the Entertainment Industry from all States and Territories of Australia

Group 1: Performing Artists and Music Composers (including musicians, radio presenters, actors, singers, entertainers or variety artists, dancers or choreographers, television presenters, composers, music professionals and music directors)

Group 2: Performing Arts Support Workers (including media producers, film and video editors, program director, director, production assistants, video producer, film, television and stage directors, technical director, make-up artist, director of photography, stage manager, venue managers and artistic directors)

Group 3: Broadcasting, Film and Recorded Media Equipment Operators (includes sound technicians, camera operators, projectionist, light technicians, television equipment operators, roadies, performing arts technicians)

Key Findings

CULTURE:

- The majority of Australian entertainment industry workers express an overwhelming passion for their creative work.
- There is a powerful, negative culture within the industry including a toxic, bruising work environment; extreme competition; bullying; sexual assault; sexism and racism.
- There are high levels of mental health problems and suicidality.

INCOME:

- 35% of all workers earn an annual industry income below \$20,000
- 72.5% of workers earn less than \$60K annually from the entertainment industry
- 65% have a combined income below \$60K from earning within and outside the entertainment industry
- 4.6% have been generating their primary income from the Entertainment Industry for 2-15 years
- 63% of Performers, 28% of Support Workers and 20% of Technicians/Crew earn less than the minimum wage of \$34,112

WORK & SLEEP PATTERNS

Working unpredictable hours

- 43.1% of workers work most of the time in the evenings and night
- 41.9% work on the weekends
- 30.2% always work unpredictable hours
- This is well over general population shift work patterns where 16% of the general population are shift workers.

Sleep disorders

- 44% of workers don't get enough sleep
- 45.5% have disrupted sleep.
- 6% of the population has a chronic sleep disorder. Workers suffer sleep disorders 7 times greater.

Insomnia

- 16% of workers suffer from insomnia which is three times greater than general population at 5.6%.

Impact of irregular work patterns and sleep disorders

- 57.9% workers have problems finding time for their families,
- 63% have trouble maintaining a social life
- 45% have trouble keeping contact with their friends in the industry

MENTAL HEALTH

Diagnosis of a Mental Health Disorder in their lifetime

- The most common mental health diagnoses reported across the three groups is depression and anxiety.
- 44% of industry workers have moderate to severe anxiety. This is 10 times higher than the general population.
- The levels of depression symptoms are five times higher than general population scores.

Sought Professional Assistance for Mental Health Issues

- Overall 59.5% workers have sought professional assistance for their mental health issues.

SUICIDE

Ideation and Planning

- **Suicide attempts** for workers are more than double that of the general population.
- In the last twelve months road crew members experienced **suicide ideation** almost 9 times more than general population.
- In the last twelve months workers experience **suicide ideation** from 5-7 times more than the general population and 2-3 times more over a lifetime.
- **Suicide planning** for workers is 4-5 times more than general population

Drug and Alcohol Use

Alcohol use and drug use for non-medical reasons are at very high levels compared to the general population

- **alcohol** (at 11-19 standard drinks in one day) is consumed at double the rate,
 - **meth/amphetamine** use is 8 times greater,
 - **ecstasy** use is 7 times greater,
 - **cocaine** use is 12 times greater,
 - **marijuana** use is 4 times greater,
 - **pain killers** for non-medical reasons is 7 times greater,
 - **tranquillizers** for non-medical reasons is 9 times greater
- than the general population in NDSHS, 2013

A critical finding, across most types of drug use is that more than 20% of the respondents selected

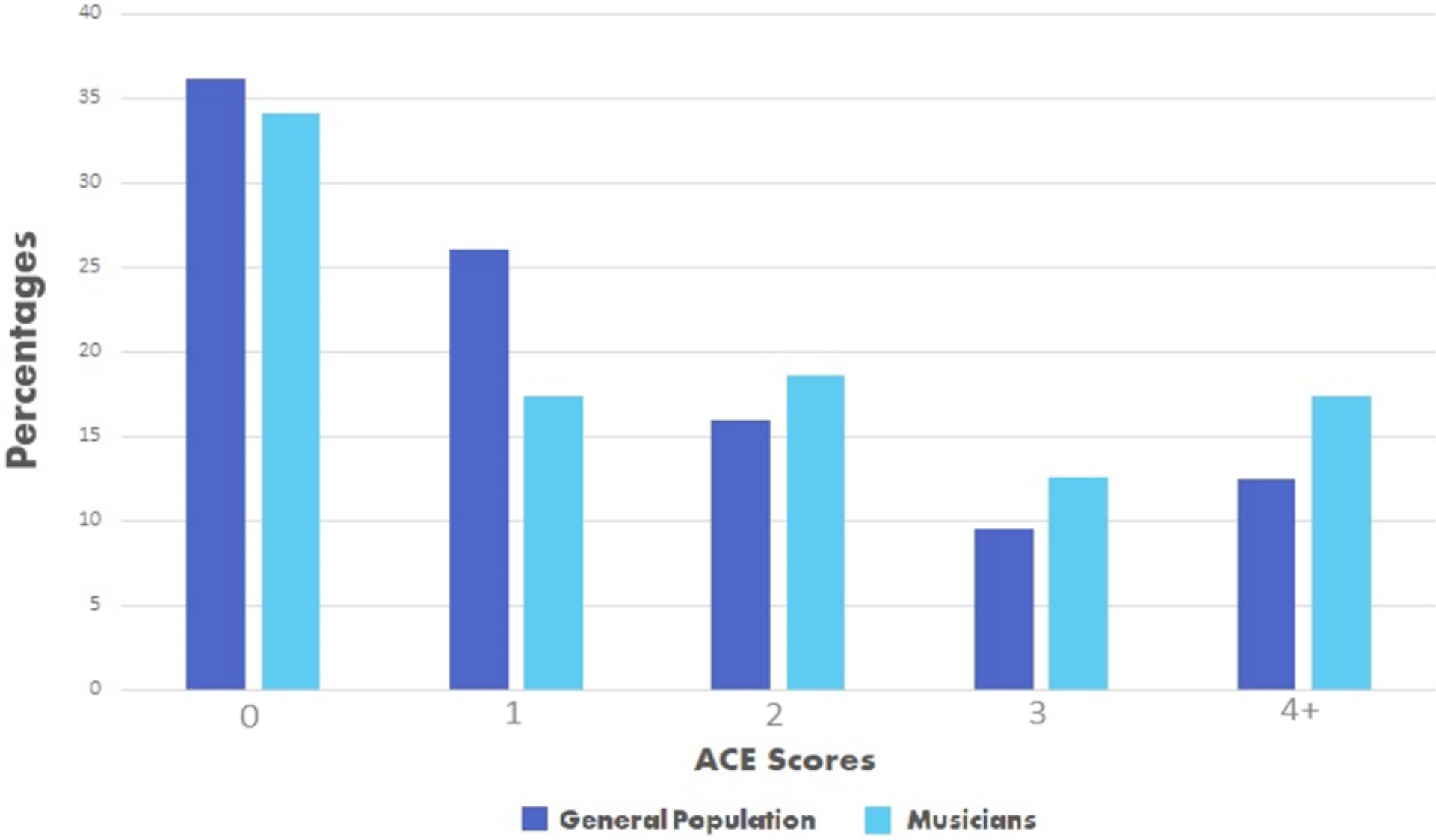
“I am addicted”

compared to 4.5% for the general population

Adverse childhood experiences, or ACEs, are potentially traumatic events that occur in childhood (0-17 years).

- ▶ experiencing violence, abuse, or neglect
- ▶ witnessing violence in the home or community
- ▶ having a family member attempt or die by suicide
- ▶ substance misuse
- ▶ mental health problems
- ▶ instability due to parental separation or household members being in jail or prison

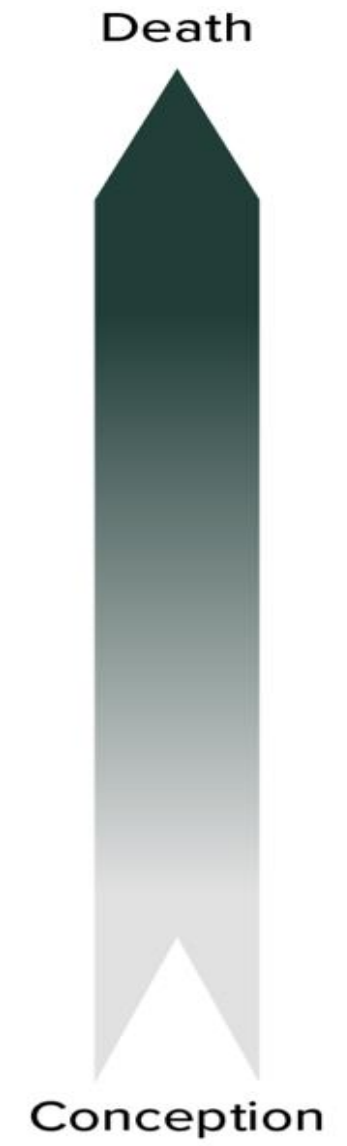
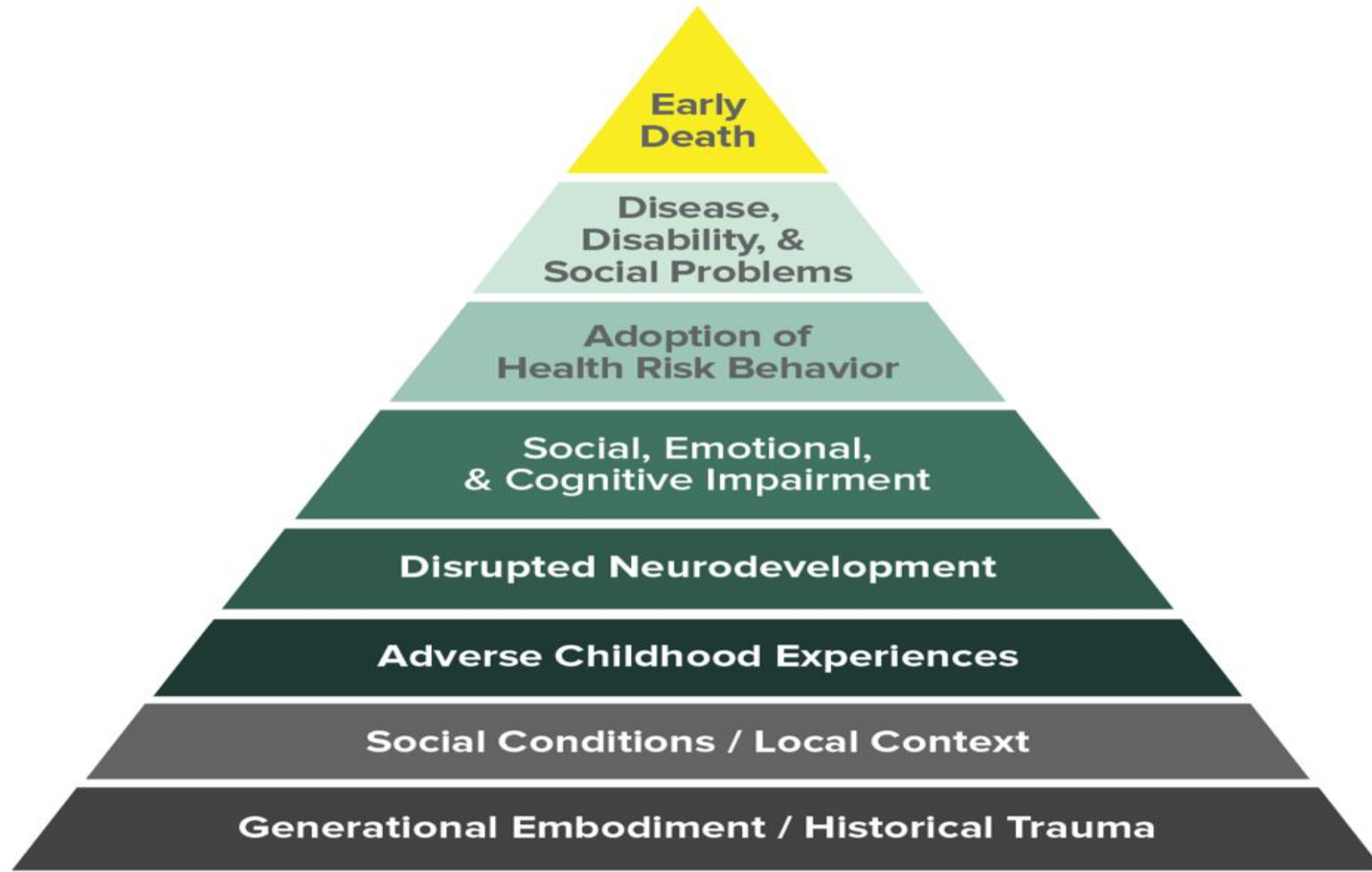
ACE Scores in Musicians vs General Population



The number of ACE's for the clinics patients is significantly higher than that of the general population

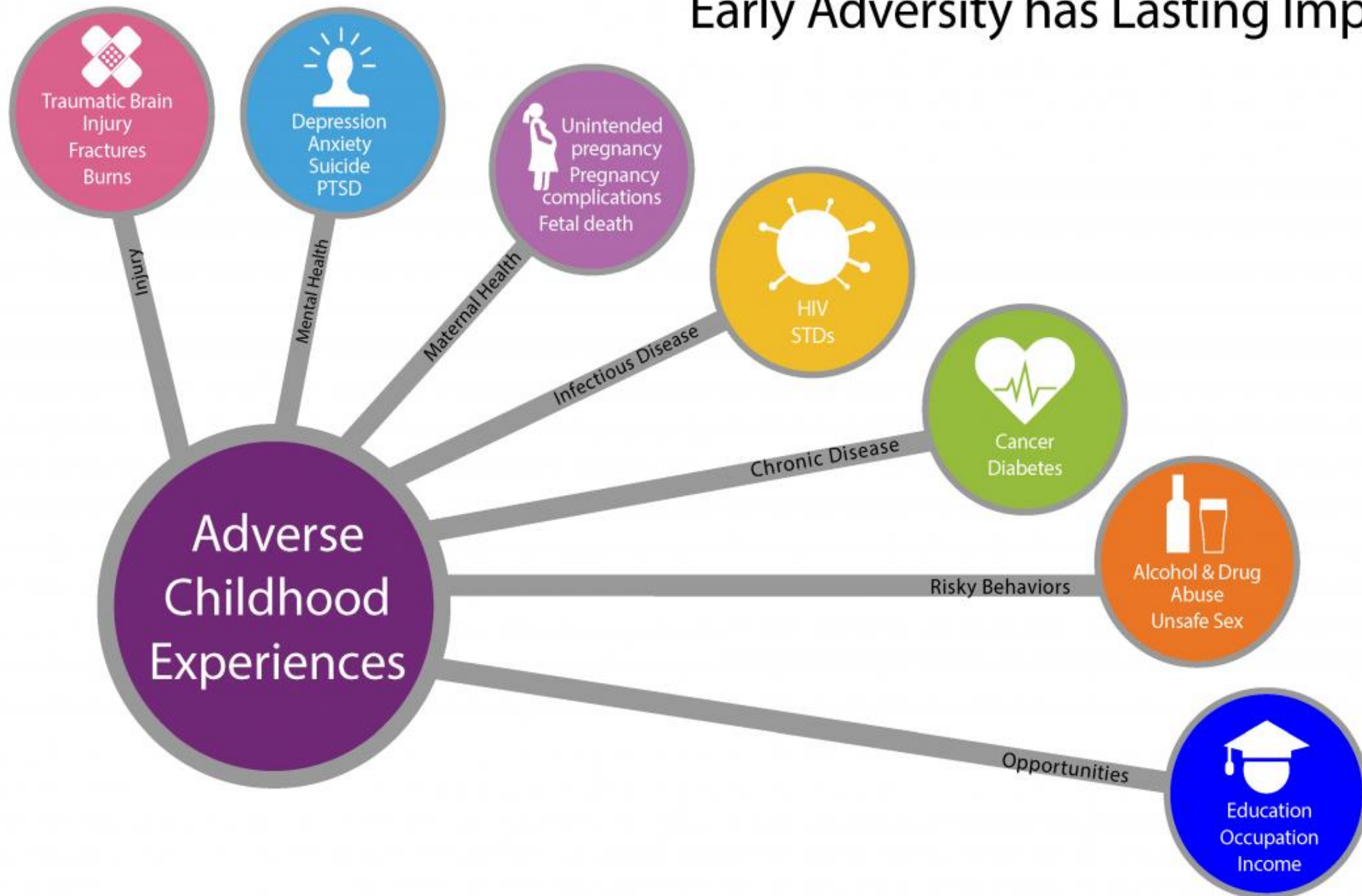
From the highest to the lowest impact of ACE scores:

- Patients' ACE scores accounted for the variability in their stress scores by 18.7%
- Patients' ACE scores accounted for the variability in their DASS scores by 15.3%
- Patients' ACE scores accounted for the variability in their anxiety scores by 13.4%
- Patients' ACE scores accounted for the variability in their sleep scores by 11.8%
- Patients' ACE scores accounted for the variability in their pain intensity scores by 2.5%
- ACE scores did NOT contribute to patients' pain interference scores or depression scores.



Mechanism by which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

Early Adversity has Lasting Impacts



PERFORMANCE EXPOSURE THERAPY

TWELVE-TONE TUNE UP TARGETS

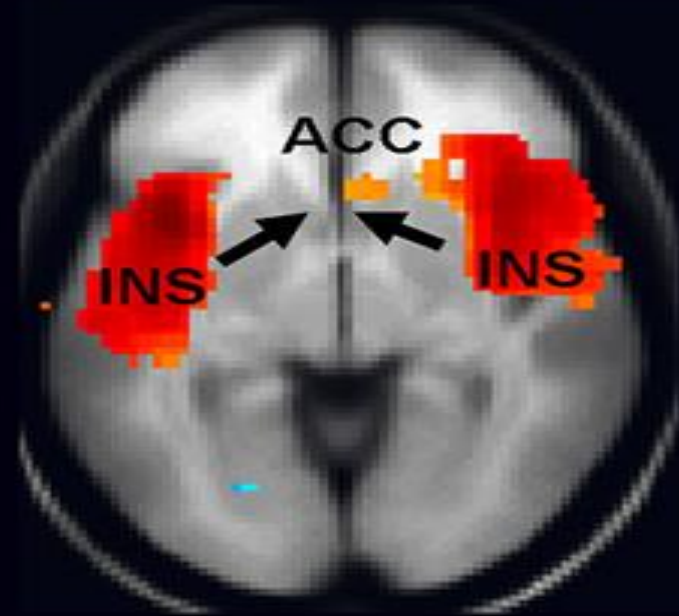


- **A** - Awareness - Neurobiology of Stress
- **A#** - Anxiety - Performance Anxiety
- **B** – Boundaries – Traumatic Experiences
- **C** – Cognition - Mind/Body Connection
- **C#** - Control - Perfectionism
- **D** – Depression - Bipolar Disorder
- **D#** - Dependence - Addiction
- **E** – Exercise - Nutrition
- **F** – Fatigue – Recovery/Sleep
- **F#** - Focus - Deep Practice
- **G** – Goals – Work/Lifestyle Balance
- **G#** - Graduation – Resilience/Creativity

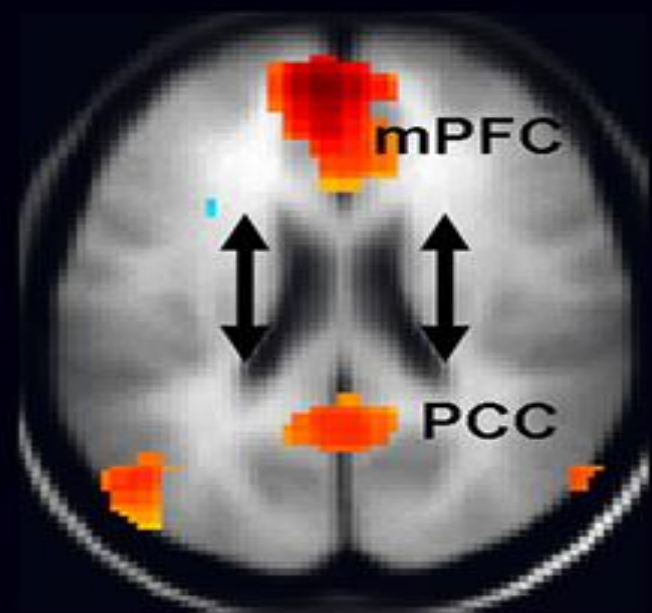


Adapted from Prolonged Exposure Cognitive Behavioural Therapy

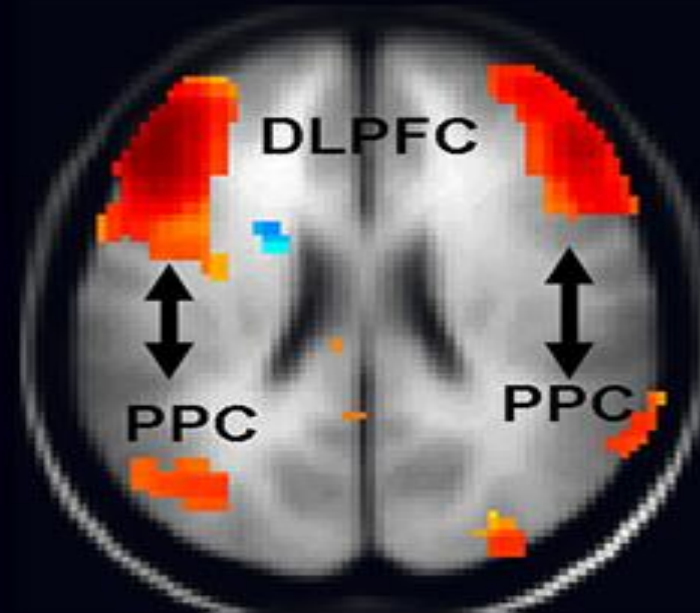
Saliience network



Default mode network



Central executive network



Anticorrelation



CREATING THE RESILIENT PERFORMER

AALIGNMENT

BBREATHING

CCOORDINATION

DDIET

EEXERCISE

FFOCUS

GGOALS

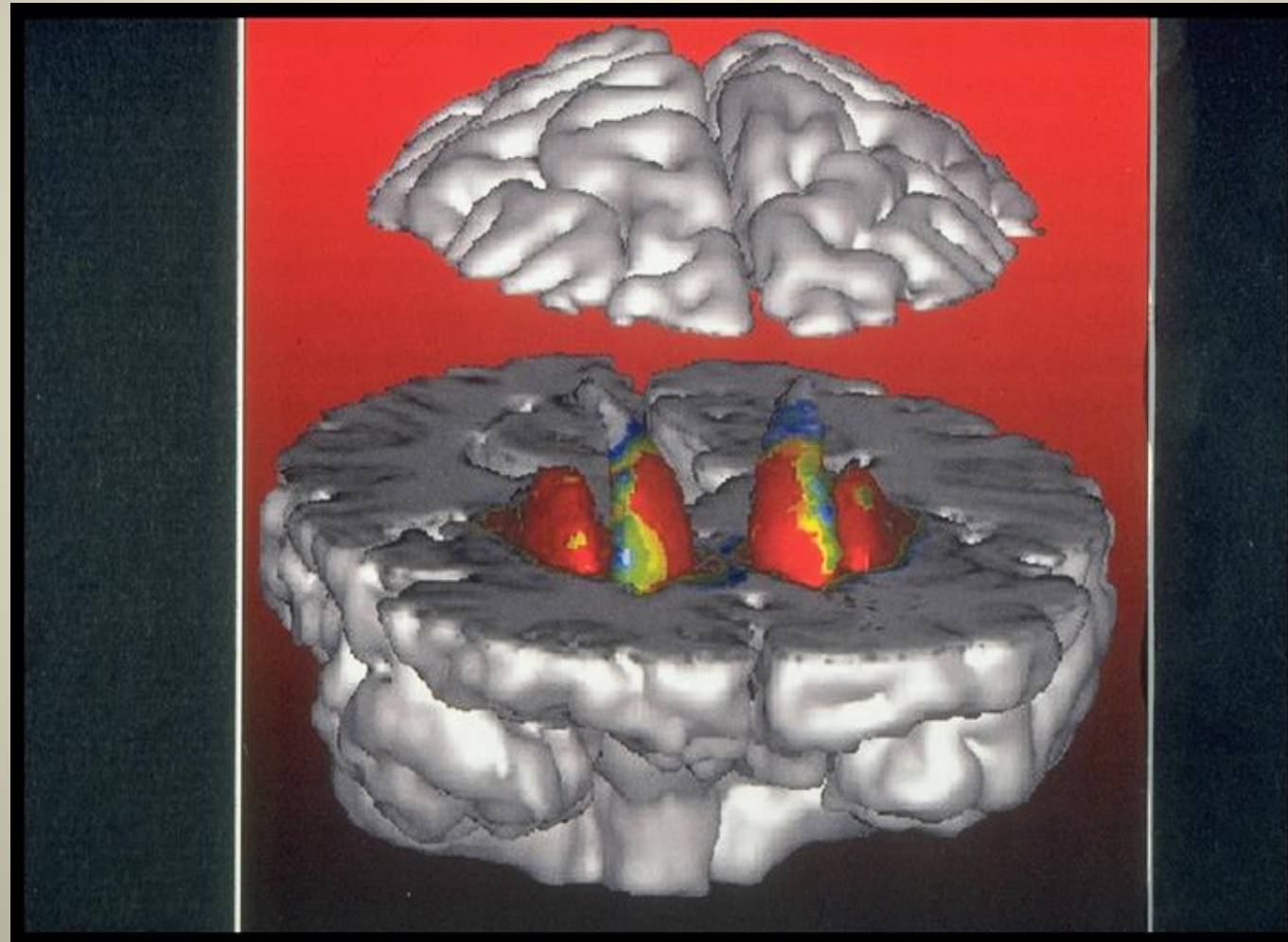
CREATING THE RESILIENT PERFORMER

- SURFACE ElectroMyoGraphy
 - MOTION IMU Analysis
 - AUDIO/VIDEO Feedback
 - HEART RATE VARIABILITY Analysis
 - NEUROBIOFEEDBACK Analysis
 - PSYCHOTHERAPY MBSR CBT PET
 - Transcranial DIRECT CURRENT STIMULATION
 - ACUPUNCTURE
 - MEDICATIONS
-

PERFORMANCE EXPOSURE THERAPY

ARTISTS' PSYCHOPHYSIOLOGY AND ERGONOMICS LAB (APELab)

MONKEY
SEE



MONKEY
DO

THANKS FOR YOUR ATTENTION – ANY QUESTIONS?



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