Timeless

The Journey from Attachment to Compassion & Wisdom

Ageism

Ageism, like all prejudices, influences the self-view and behavior of its victims.

Robert Butler

The Standard Dogma

They have little to offer

They are a burden on society

Depression & memory loss

When Are We Old?

Why 65?

The Neuroscience Dogma

No qualitative changes in the brain after childhood.

Gradual diminution of structures and functions after the Golden Year of 25.

Then Jay Giedd's paper comes along.

An Adolescent Critical Period

Tied to changing social demands -- mating, new peer connections - changing roles and responsibilities.

Maturation of neural connectivity

Frontal and limbic

An Idea

What if the brain continues to change throughout life to meet changing social demands?

Neural Health and Plasticity

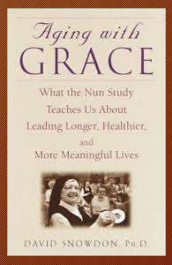
Epidemiological Correlates of Sustained Brain Health

Exercise

Caloric Restriction & Diet

Intellectual Challenge & Cognitive Reserve

Aging with Grace



Aging with Grace

"What I know for sure is that nutrition for healthy aging is not just about eating certain foods and…vitamins… It also depends on…whom we eat with, and whether the meal nourishes our heart, mind,

Interpersonal Neurobiology

The brain is a social organ of adaptation,
which needs to be studied in the context of

1) relationships, and

2) lifelong development.

Sociobiology

Natural Selection is guided by the dual forces of individual and group selection.

The group must survive for the individual to survive and visa versa.

The Adaptive Context of the Social Brain

Groups of 50-75-125

Extended / Multi-Generational Families

Caretaking Specialization

Increasing Dependency in Childhood

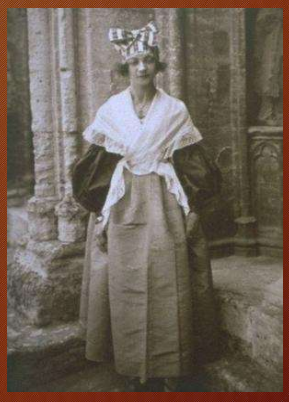
Increasing Interdependency in Adulthood

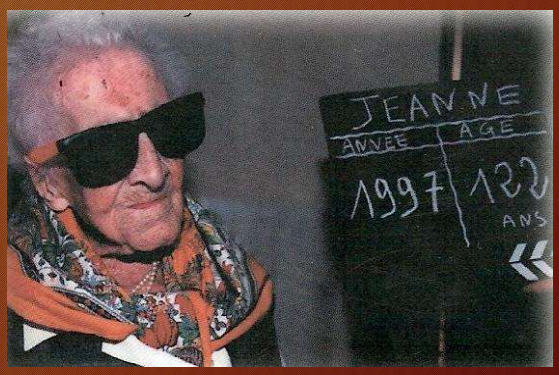
A New Story of Aging

The story of aging is one of decline, maintenance & growth

Each stage of life has been influenced by the needs of the group.

Aging isn't a loss of

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New Assumption

The brain is not a monolithic structure, it is a *government of systems* with different…

1) functions,
2) evolutionary histories and
3) patterns of development & aging.

The Life History of the Social Brain

Decline

- decreases in new learning
- decreased lateral specialization
- slower processing speed

Maintain

- attachment
- expert knowledge
- episodic memory
- generating narrative

The Life History of the Social Brain

Grow

- Greater complexity of brain wave patterns
- Broader neural participation
- Increased coodination of cortical activation
- Maturation of networks of affect regulation

(Anokhin et al., 1996 & Tessitore et al., 2005)

The Traditional Contribution of Tribal Elders

Leadership / Mediation / Managing Resources

Spiritual and Religious Practices

Child Care / Housekeeping

Storytelling, History, Knowledge, Wisdom

The Life History of the Social Brain

Changing Roles and Responsibilities

1. The transmission of experience, knowledge, and skills through demonstration and storytelling

2. Slow and inclusive deliberation related to interpersonal, tribal, and spiritual issues

The Life History of the Social Brain

Changing Roles and Responsibilities

3. Sustained attachment and enhanced emotional maturity in the service of group cohesion and embodied wisdom.

4. The promotion of morale through optimism

Why Menopause?

The *Grandmother Gene Hypothesis* – attempts to explain the onset of menopause based on:

1) The increased risk of late life childbirth to both mothers and children
2) The added survival value to the offspring of offspring of an available grandmother

Survival in Rural Gambia

- The presence of maternal grandmothers:
  - Increases the nutritional status, height, and survival rate of her daughter's children.
  - Fathers, paternal grandmothers and other male kin have no impact on nutritional status or survival.

Sear et al., (2000). Maternal grandmothers improve nutritional status and survival of children in rural Gambia. Proceedings of the Royal Academy of London, 267, 1641-1647.

Primate Longevity & Caretaking

	Female/male survival ratio	male care
• Chimpanzee	1.418	rare
• Spider Monkey	1.272	rare
• Gorilla	1.199	pair-living, little direct role
• Gibbon	1.125	protection & play
• Human (Sweden)	1.052-1.082	some direct care
• Goeldi's monkey	0.974	both parents carry infant
• Owl monkey*	0.869	carries infant from birth
• Titi monkey*	0.828	carries infant from birth

Allman et al., (1998). Parenting and survival in anthropoid primates: Caretakers live longer. Proceedings of the National Academy of Science, USA, 95, 6866-6869.

Primate Longevity & Caretaking

"It is conceivable that the strength of these bonds and their underlying neurochemical and hormonal bases, might

Neural Health and Plasticity

Social and Psychological

Positive Emotional Relationships
Sustained Physical Contact
Maintenance of Social Roles
Feeling Needed
Optimism & Humor
Positive Views about Aging

The Positivity Effect

Compared to younger adults, older adults demonstrate

Increased:
Impulse Control
Affect Regulation
Understanding of Emotional States
More Coping Strategies for dealing with Emotions

Decreased:
Emotional Lability
Sensation Seeking
Physiological Responsiveness to Emotional Stimuli

The Positivity Effect

Paying less attention to negative words and images and remembering more positive and neutral ones.

Increased left frontal activation during face processing

Positive "*spin*" to memory except when the need for accuracy is stressed

The Mellow Years

Emotional stability improves linearly over seven decades (12-79 years).

A shift toward greater medial prefrontal control over negative emotional input and less control over positive input

Attaining Wisdom

Wisdom is a sacred communion

Victor Hugo

A blend of information & compassion

More Mature Thinkers Demonstrate

Tolerance of their own ignorance & less need for control

More realistic expectation and forgiveness of self & others

Increase empathy and maintenance of connectedness

Less denial & blame / more humor & sublimation

Adapted from Labouvie-Veif, 1990

General Principles

The brain is a dynamic process…

…programmed to morph over time in lockstep with social embeddedness…

…brain health is optimized with the flow of this

General Principles

Optimize Challenges

Maximize Attachments

Orientation toward Wisdom

Brain Health & Neural Plasticity

…anything that signals the brain that we are still an important member of the tribe and adaptation is still required.

…will be down-regulated by anything which signals the brain that adaptation is no longer required.

Neural Health and Plasticity

Epidemiological correlates of Sustained Brain Health

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Hiding in Plain Sight

Positive attachment is always good for us, regardless of age.

Contribution to the group is essential for as long as possible and in any way possible.

"Aging is not a misfortune;

it is a deep responsibility to those who are to come and a way to pay back those who came before us."

For many, reaching old age means outliving your demons.

Enjoy life without them.

Timeless