Older & Wiser: The Benefits of a Mature Brain & How to Preserve Its Health

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Welcome to the New Old Age!
Myths About Aging

- Old = Unhappy
- Retirement is great!
- It’s too late to change
- You shouldn’t hire seniors
- Old people feel old
- Old Age = Regrets
- Memory loss = Dementia
- Alzheimer’s is inevitable
Reality Check

- Happiness in 70s > 40s
- Early retirement increases risk of death
- You can teach an old dog new tricks...it’s never too late to change
- Older brains may be slower, but better in several areas
- Seniors report feeling young
- Only 1% say lives worse than expected
- Dementia is not inevitable
- Healthy lifestyle reduces risk
Older and Happier
Do Ya Think I’m Sexy?

Yes... at any age!
How Your Brain Grows: Neuorgogenesis, Neuroplasticity, & Epigenetics
Brain at Birth

6 Years Old

14 Years Old
Quick Brain Tour
Left & Right Hemispheres
Limbic System

- Cingulate cortex (pain and visceral responses)
- Fornix
- Frontal cortex
- Septum (pleasure, reproduction)
- Olfactory bulb (smell)
- Mammillary body
- Amygdala (emotions)
- Hippocampus (memory acquisition)
- Corpus callosum
- Thalamus
- Stria terminalis

Basal ganglia removed
Amygdala
Reward Circuit
Cerebrum

- Frontal lobe
- Central sulcus
- Parietal lobe
- Occipital lobe
- Sylvian fissure
- Temporal lobe
- Cerebellum
Neurons & Myelin

The Major Structures of the Neuron

The neuron receives nerve impulses through its dendrites. It then sends the nerve impulses through its axon to the terminal buttons where neurotransmitters are released to stimulate other neurons.
The Synapse

[Diagram of a synapse showing the sending neuron and receiving neuron, along with the synaptic vesicle, synaptic gap, dendrite of the receiving neuron, synaptic knob, neural impulse, and neurotransmitter molecule.]
Normal Aging: What to Expect

- Brain becomes lighter & smaller
- Slower networks, but frequently more accurate
- Multi-tasking more difficult
- More brain areas utilized for challenging tasks
- Old injuries may take a toll
- Non-brain illnesses can impair functioning
- Exercise (physical, social, & mental) more important
- Potential for happiness increases
- Sexual desire persists

Adapted from The Scientific American The Healthy Aging Brain by Judith Horstman
Advantages of the Mature Brain

- More reflective, less reactive
- Enhanced creativity
- Improved contextual memory
- Increased vocabulary
- Wisdom gained from experience
- Greater pattern recognition

Age is the acceptance of a term of years. But maturity is the glory of years.
Martha Graham
Pattern Recognition

Refers to an organism’s ability to recognize a new object or a new problem as a member of an already familiar class of objects or problems.

Cognitive psychologists have shown that pattern recognition is among the most powerful, perhaps the foremost mechanism of successful problem-solving.
Wisdom

- A wise individual is perceived by others as someone endowed with a unique ability to look at a problem or situation and solve it.

- Wisdom entails not only a deep insight into the nature of things, but also a keen understanding of what action needs to be taken to change them.
It has long been recognized by philosophers, psychologists, and poets that wisdom and competence are the rewards of aging.
Threats to Brain Health

- Alzheimer’s/Dementia
- Mild Cognitive Impairment
- Stroke
- Parkinson’s Disease
- Diabetes
- TBI
- Depression
- Past Injuries & Illnesses
- Medication Effects & Interactions
Signs of Mental Decline

- Asking same question
- Repeating same story word for word
- Forgetting basic tasks
- Problems paying bills
- Getting lost in familiar places
- Neglecting hygiene
- Relying on someone else to make decisions
- Frequent falls/poor balance
But First Rule Out...

- Overmedication/drug interactions
- Dehydration
- High fever or untreated infections
- High blood pressure/heart disease
- Untreated chronic conditions (thyroid, diabetes)
- Vitamin deficiencies (especially B & D)
- Alcoholism or just too much to drink
- Depression, stress, anxiety
Optimize Brain Function through...

- Physical Exercise
- Mental Stimulation
- Healthy Nutrition
- Social Connection
- Creativity, Spirituality, and Attitude
The Many Brain Benefits of Exercise

- Produces new brain cells
- Reduces risk of diabetes, stroke & heart disease
- Controls weight, lowers blood pressure
- Improves balance
- Lowers stress, anxiety & depression
- Promotes good sleep
Exercise Rx

- 2.5 hrs a week; 30 min. a day brisk exercise
- Daily Living Activities
- Walking
- Swimming
- Biking
- Court sports
- Dance/Aerobics
- Cross country skiing
- Tai Chi
- Yoga
Mental Stimulation

- Learn a new language
- Play chess, bridge...
- Computerized brain games
- Take up a musical instrument
- Take a class
- Teach a class
# Basics of Good Nutrition:

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<th>Avoid</th>
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<td>Saturated Fats</td>
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<tr>
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<tr>
<td>Complex Carbohydrates</td>
<td>Processed Meats</td>
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<tr>
<td>Grains?</td>
<td>Simple Carbohydrates/Sugar</td>
</tr>
<tr>
<td>Nuts</td>
<td>Processed/Junk Foods/HFCS</td>
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<tr>
<td>Lean Protein</td>
<td>Limit Red Meat</td>
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<tr>
<td>Healthy Fats</td>
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</table>
Food for Thought

- Carbohydrates
- Liquids
- Caffeine (in moderation)
- Iron
- Calcium
- Zinc
- Phenylaline & Tyrosine
- Serine, Methionine
- Vitamin B1 (Thiamine)
- Unsaturated Fatty Acids
- Supply glucose/energy
- Stabilize Circulation
- Improves memory/focus
- Transports oxygen
- Conducts neural signals
- Aids memory & focus
- Memory & focus
- Learning & memory
- Aids nerve cell fxs
- Builds cell membranes
With a little help from my friends...

Social connection

- Lowers blood pressure and inflammation
- Improves immune system functioning
- Promotes better personal health care
- Lowers or delays risk of memory loss
- Relieves pain
Feed Your Soul!

- Creativity
- Travel
- Meditation
- Spirituality
- Smile!
- Optimism/Gratitude
Neuron donor mice
Whether We Realize it or not...

We are always practicing something.

When it comes to your brain’s health, what are you practicing?
Brain Habits Quiz
Brain Habits Quiz Scoring Key

Add up your total number of points.

If you score between 0-6 then odds are you have very good brain habits. Congratulations! Keep up the good work.

If you score between 7-12 odds are you are doing well, but tweaking some behaviors can improve the health of your brain.

If you score between 13-20 your brain habits are not very good and you may be prematurely aging your brain. Making positive changes now can slow this process.

If you score more than 20 you have poor brain habits and it is time to be concerned. A brain makeover may just change your life!
Senior Achievers

- Sophocles (70 & 83)
- Golda Meir (71)
- Benjamin Franklin (81)
- Agatha Christie (86)
- Michelangelo (88)
- Arthur Rubenstei, Albert Schweitzer & Frank Lloyd Wright (89)
- Andy Rooney (92)
- Brenda Milner (92)
- Grandma Moses (100)
Thank You!

Any Questions?