Optimal Cognitive Health

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Normal Aging Changes

- Some changes are normal
  - Longer learning time
  - More repetition needed to learn
  - New language more difficult
  - Word finding problems
  - No change in artistic (right brain) function

- “Senility” is not normal with age

- Dementia is not a normal change of age
Personal Prevention Options

- Enhance physical and mental activities
  - Variety
  - New challenges - “Good” stress
- Control risk factors
  - Smoking, blood pressure, diabetes, depression
- Build strong social relationships
- Maintain financial health

Less TV
Out With The Old Ideas

- Old ideas
  - Brain cells are limited
  - Cannot grow new cells
  - Repair occurs through recruitment and rewiring

- New knowledge
  - New cells are created and migrate to area of use
  - New synapses can develop
  - Controlled by BDNF

Brain-derived neurotrophic factor
The Brain
New Neuron Growth

- Frontal lobes - personality, planning, decision-making, working memory
- Parietal lobes – visual recognition memory
- Hippocampus – spatial memory
- Amygdala – emotional memory
How To Increase BDNF?

- Columbia U – 21 to 45 y/o – exercised 1 hour 4 times a week, then MRI at 12 weeks
  - Hippocampus had doubled in size

- Univ of Illinois – 60 to 79 y/o sedentary people, walked 1 hour 3 times a week
  - Significant brain growth, new blood vessels, more synapses

- Increased BDNF, insulin-like growth factor, seratonin
Ronald Peterson MD

- Director of the Alzheimer’s Disease Research Center at Mayo
- “Regular physical exercise is probably the best means we have to prevent Alzheimer’s disease today: better than medications, better than intellectual activity, better than supplements and diet.”
  - 1/3 reduction in risk
- American’s spend $6 billion on AD drugs annually
Exercise & Parkinson’s Disease

- Increased research showing exercise prevents Parkinson’s or reduces symptoms in those who have it
- 60% reduction if regularly exercising for life
- Rat studies – injected with a basal ganglion toxin
  - Sedentary rats – developed PD
  - Strenuous exercise rats – didn’t
Targeting Brain Functions

- Crossword puzzles (verbal memory)
- Bridge (general memory)
- Jigsaw puzzles (visual-spatial function)
- Complex activities
  - Dancing
  - Painting
  - Learning a new language
  - Making music
More Complex Activities Studied

- Autobiography in groups
- Late-life learning
- Stress management techniques
- Direct social engagement (volunteering)
Other Prevention Strategies

- Vitamin E – possibly, only if in diet
- Omega-3 - possibly
- Eating fish
- Mild to moderate alcohol intake
**Doubtful Strategies**

- Vitamin E capsules
- Gink biloba
- Nicotine
- Acetyl-L-carnitine
- Phosphatidyl serine
Things That Don’t Prevent AD

- Vitamin B complex
- Anti-inflammatory drugs
- Estrogen
- Statins
- DHEA
- Dementia drugs
Dementia

- Memory loss
- Neurologic changes
  - Language problems
  - Dressing, driving or toileting problems
  - Using objects incorrectly
  - Personality changes
- Decreased “executive” function - judgement, insight, abstract reasoning
- Bad enough to affect social function
- NOT due to something else (depression, meds)
Something Else?

- Medications – Elavil, most antidepressants, all sedatives and sleeping pills, narcotics, Tagamet, Benadryl, antihistamines, bladder medicines
  - “When in doubt, cut it out!

- Depression
- B12 deficiency
- Hypothyroid
- Chemical imbalances
What to Watch For

- Repeats or asks the same thing over & over in the same conversation
- Forgets appointments, family occasions
- Problems with checkbook, or paying bills
- Difficulty buying groceries
- Difficulty dressing
- Problems taking medications
Assess for Dementia

- Complete History & Physical exam
- Check the nerves and muscles
- Evaluate Activities of Daily Living (ADL)
- Mini-Mental State Exam (MOCA)
- Depression test
  - (Geriatric Depression Scale or PHQ-9)
- Review all medications
- Basic laboratory tests
Measuring Cognition

- Mini-Cog
  - 3 word recall
  - Clock drawing
- Montreal Cognitive Exam (MOCA)
- Mini Mental State Exam (MMSE)
The 3 D’s

- Memory Loss
  - Normal Changes
  - Abnormal Changes
    - Dementia
    - Delirium
    - Depression
      - Alzheimer’s
      - Others
      - Reversible
        - Lewy Body
        - Fronto-temporal
        - Parkinsons
        - Vascular
Types of Dementia

- Alzheimer’s disease
- Vascular (“small strokes”)
- Dementia with Lewy Bodies
- Fronto-temporal dementia
- Others (e.g., Parkinson’s)
Alz - Sequential Losses

Memory
Complex tasks - work, driving to new place
Simpler tasks - checkbook, baking
Language - can’t name things, says words incorrectly
Dressing & toileting problems
ADLs - bathing, incontinence, transfers, walking
PET Scan and AD
Treatment Options for AD

- Vitamin E – not effective
- Ginkgo biloba – probably not effective
- Acetylcholinesterase inhibitors
  - donepezil (Aricept)
  - rivastigmine (Exelon)
  - galantamine (Razadyne)
- NMDA antagonists
  - memantine (Namenda)
Alzheimer’s Medications

- Response rate:
  - 10% show some measurable improvement
  - 20-30% - slows progression 6 months to 2 years
  - 50- 70% - no response

- Must have a measure before and then repeated to tell if improving

- 30-50% have side effects

- Expensive
The Process of Dementia

- Brain injury
  - Risk for development (genetics)
  - Requisite triggers (head injury, stress? depression?)
  - Brain cell degeneration (nerve impairment)
  - Compensatory inflammatory response
- But - wide variation is found!
  - Degree of pathologic change
  - Course
Causes of Variation

- Pre-existing demeanor or personality?
- Stress management skills?
- Intellectual capabilities?
- Emotional intelligence?
- Changes in the psycho-social state after development
  - Patterns of relationships
  - Forms of interaction
WHO Definitions

- Disease - molecular
- Impairment - organ
- Disability - person
- Handicap - society
Handicapping Persons

Attitudes and beliefs

- Neglect
- Negative actions
- Disempower

“Malignant Social Psychology” – T. Kitwood
Malignant Social Psychology

- Deception
- Disempowerment
- Infantalization
- Intimidation
- Stigmatization
- Outpacing
- Invalidation
- Banishment
- Ignoring
- Imposition
- Withholding
- Accusation
- Disruption
- Disparagement
A Dialectic Process

Person in State 1

NI

MSP

Person in State 2

NI

Person in State 3

NI

MSP

NI – nerve impairment

MSP – malignant social psychology
Personhood Maintained

- Reminiscence
- Appropriate activities
- Pleasurable human contact
- Day care
- Individual and group counseling
- Caregiver support groups
- Honest talking
Positive Person Work

- Recognition
- Negotiation
- Collaboration
- Play
- Touch
- Celebration
- Relaxation
- Validation
- Safety
- Facilitation
Bottom Line

Forget logic

Do you want to be right, or do you want results?
“Rementing”
What People with Dementia Need

Attachment
Comfort
Identity
Inclusion
Occupation

Love
Evidence-Based Interventions

- Music therapy
- Massage
- Therapeutic touch
- Enriched, appropriate environments
- Bathing without a battle

Cochrane reviews
Simple Interventions

- Never negate a delusion or hallucination
  - Shift focus and attention
- Never argue about a “fact”
- Never appeal to “reason”
  - Logic doesn’t exist
- Look for the feeling behind the “fact”
- Maintain a low level of your stress response
- Always try to stop (or not start) meds
“Contact with dementia can – and indeed should – take us out of our customary patterns of over-busyness, hypercognitivism and extreme talkativity, into a way of being in which emotion and feeling are given a much larger place.”

Tom Kitwood, *Dementia Reconsidered*, p 5
Resources

- NIA (www.nih.nia.gov)
- Healthy Brain Initiative (Alz. Association)
- Alzheimer’s Association (www.alz.org)
- Alzheimer’s Project of Tallahassee
- The Best Friends Approach to Alzheimer’s Care, by Bell and Troxell
- Dementia Reconsidered, by Tom Kitwood
Handouts

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