MILKEN INSTITUTE GLOBAL CONFERENCE
Aging and Mental Function: Why We Forget, How We Remember
Keeping Your Brain Young

- Risk for brain aging
  - 1/3 genetics
  - 2/3 lifestyle choices
- Preventing brain cell loss more effective than repairing
Positron Emission Tomography (PET)
Diagnosis and Prevention in the Future

Brain Aging Index

Neuron Function (PET)

Brain Stress (MRI)

Brain Amyloid (PET)

Shrinkage (MRI)

Genetic Risk (Blood test)

Memory Scores (Forms)
Brain Teaser

23  21
18
39
16  28
Brain Stress Test

Genetic Risk

No Risk
Mental Aerobics Warm-Up

• Steve is standing behind Ralph and at the same time Ralph is standing behind Steve. How can that be?
Mental Aerobics

• Any mental activity that exercises the brain
• “Use it or lose it”
• Train but don’t strain
Brain Teaser

Figure out the phrase suggested by the message in the box:

CROSS
Mental Aerobics Warm-Up

Figure out the word suggested by the message in the box:

CYCLE
CYCLE
CYCLE
CYCLE
Brain Teaser

Figure out the movie title suggested by the message in the box: WAYS
Slow Down Brain Aging

- Mental activity
- Stress reduction
- Physical activity
- Healthy brain diet
Memory Word List

- Salad
- Banker
- Butterfly
- Locker

- Lizard
- Nun
- Teddy bear
- Cigar
LOOK, SNAP, CONNECT

• **Look**
  - Actively observe what you want to learn

• **Snap**
  - Create a vivid mental snapshot or memorable image

• **Connect**
  - Visualize a link to associate images
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Using LOOK, SNAP, CONNECT

- Meaning
- Detail
- Action, movement
Memory Word List

- Salad
- Banker
- Butterfly
- Locker

- Lizard
- Nun
- Teddy bear
- Cigar
Stress Effects

- Stress hormones impair memory
- Chronic stress shrinks brain memory centers
- Causes depression and anxiety
Physical Exercise Protects the Brain

- Physical activity protects memory brain cells
- Active people have a lower risk for Alzheimer’s disease
- Aerobic conditioning improves brain function
Healthy Brain Diet

- Optimum body weight
- Antioxidant foods
- Healthy fats
- Healthy carbohydrates
### Some Top Antioxidant Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>ORAC Units/3.5 oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prunes</td>
<td>5770</td>
</tr>
<tr>
<td></td>
<td>2830</td>
</tr>
<tr>
<td>Raisins</td>
<td>2400</td>
</tr>
<tr>
<td></td>
<td>1260</td>
</tr>
<tr>
<td>Blueberries</td>
<td>950</td>
</tr>
<tr>
<td></td>
<td>890</td>
</tr>
<tr>
<td>Spinach</td>
<td></td>
</tr>
</tbody>
</table>
## Some Foods Containing Good and Bad Fats

<table>
<thead>
<tr>
<th>Good Fats (Omega-3)</th>
<th>Bad Fats (Omega-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avocados</td>
<td>Bacon</td>
</tr>
<tr>
<td>Green leafy vegetables</td>
<td>Butter</td>
</tr>
<tr>
<td>Herring</td>
<td>Donuts</td>
</tr>
<tr>
<td>Lean meats</td>
<td>French fries</td>
</tr>
<tr>
<td>Olive oil</td>
<td>Lamb chops</td>
</tr>
<tr>
<td>Salmon</td>
<td>Mayonnaise</td>
</tr>
<tr>
<td>Tuna</td>
<td>Steak</td>
</tr>
<tr>
<td>Nuts</td>
<td>Whole milk</td>
</tr>
</tbody>
</table>
## Examples of Good Carbs and Bad Carbs

<table>
<thead>
<tr>
<th>Good Carbs</th>
<th>Bad Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Jelly beans</td>
</tr>
<tr>
<td>Oranges</td>
<td>Pretzels</td>
</tr>
<tr>
<td>Brown rice</td>
<td>Bagels</td>
</tr>
<tr>
<td>Fettuccine</td>
<td>Instant mashed potatoes</td>
</tr>
<tr>
<td>Nonfat yogurt</td>
<td>Instant rice</td>
</tr>
<tr>
<td>Sourdough bread</td>
<td>French baguette</td>
</tr>
</tbody>
</table>
Other Lifestyle Choices

- Avoid head trauma
- Don’t smoke
- Stay involved
- Alcohol in moderation
Use Medicines Wisely

- Take illnesses seriously
- Avoid too many medicines
- Supplements
  - Multi-vitamins
  - Anti-oxidant vitamins C and E
  - Fish oil (omega-3) capsules
Remember this face?
Remember her name?
Tips for Remembering Names

- Repeat name during conversation
- Comment if person reminds you of someone
- Ask about spelling of name
- Use name when saying good-bye
- Use LOOK, SNAP, CONNECT
EXERCISE FOR REMEMBERING NAMES

• Find out the first name of someone next to you

• Ask them what city, beginning with the first letter of their name, they would like to visit (e.g., Rita wants to visit Rio)

• Tell the person your name and the city you’d like to visit
Examples of Name SNAPs

- Carpenter
- Arnold
- Lincoln
- Katz
- Siegel
SNAPs for Harder Names

<table>
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<tr>
<th>Name</th>
<th>Description</th>
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<tr>
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<td>Shirnberger</td>
<td>Shined shoe, burger</td>
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<td>Zamichow</td>
<td>Zoom lens, chow mein</td>
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Names and Faces

Meet Paul Foreman
Names and Faces
Catherine
Names and Faces

Harry
Names and Faces

Lisa
“NAMES AND FACES” EXERCISE

• Introduce yourself to someone near you
• Create a “face snap”
• Create a “name snap”
• Connect the name snap to the face snap
Organization Tools

- Date books, electronic organizers
- Notepads, sticky notes
- Memory places
- Daily routines
- Information clustering
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>Bagel, coffee, egg-white omelet</td>
</tr>
<tr>
<td>9:00</td>
<td>Coffee cake with 2nd cup of coffee (Oops!)</td>
</tr>
<tr>
<td>10:30</td>
<td>2 Glasses of water, climbed 2 flights of stairs</td>
</tr>
<tr>
<td>11:20</td>
<td>Argued with colleague (took 10 minute relaxation break to cool down)</td>
</tr>
<tr>
<td>12:00</td>
<td>Tuna salad, green tea</td>
</tr>
<tr>
<td>1:00</td>
<td>Mental aerobics -- brain teaser exercise book</td>
</tr>
</tbody>
</table>
The Memory Prescription

Dr. Gary Small’s 14-Day Plan to Keep Your Brain and Body Young

GARY SMALL, M.D.

Director of the UCLA Center on Aging
Author of The Memory Bible

with Gigi Vorgan
A Typical Memory Prescription Day

• 1st Monday
  - Wake-up stretch/conditioning
  - Breakfast: Egg-white vegetable omelet, ½ cup blueberries, vitamins
  - Fitness on the run
  - Mid-morning snack: non-fat yogurt and raisins
  - Mid-morning mental aerobics: write with opposite hand
“Memory Prescription”
Study Design

Volunteers with mild memory complaints, age 35 to 70

Small G.  *The Memory Prescription.* Hyperion, New York, 2004
Memory Prescription Study: Preliminary Results

- Improved subjective memory scores
- Lower stress levels
- Lower systolic blood pressure (10 mmHg)
- Lower body weight (2 pounds)
- fMRI and PET brain scans showed lower activity (greater efficiency) after two weeks

fMRI Brain Stress Test

Initial fMRI

Two-week follow-up fMRI
PET Scan Results of Memory Prescription Lifestyle

5% decline in left dorsolateral prefrontal cortex

(p < 0.0005)
Healthy Lifestyle and Alzheimer’s Risk

- Lifestyle choices could lower dementia incidence
  - Eating fish once a week, anti-oxidant foods
  - Daily mental activities – reading, crosswords, etc.
  - Physical activity
- Any one change could reduce dementia prevalence in U.S. by 1 million cases within 5 years
ADVANCED MEMORY TRAINING

- Peg Method
- Roman Room Method
Peg Method

- Learn a visual peg for each number
- Create a visual image for easier recall
## Number Pegs

<table>
<thead>
<tr>
<th>One</th>
<th>Tie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two</td>
<td>Nun</td>
</tr>
<tr>
<td>Three</td>
<td>Thread</td>
</tr>
<tr>
<td>Four</td>
<td>Fork</td>
</tr>
<tr>
<td>Five</td>
<td>File</td>
</tr>
</tbody>
</table>

*From The Memory Prescription*
## Number Pegs (continued)

<table>
<thead>
<tr>
<th></th>
<th>Sack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six</td>
<td></td>
</tr>
<tr>
<td>Seven</td>
<td>Safe</td>
</tr>
<tr>
<td>Eight</td>
<td>Eight ball</td>
</tr>
<tr>
<td>Nine</td>
<td>Nail</td>
</tr>
<tr>
<td>Zero</td>
<td>Zebra</td>
</tr>
</tbody>
</table>

From *The Memory Prescription*
Number Recall Practice

- Nun, file, eight-ball, safe, Zebra
  - 2 – 5 – 8 – 7 – 0

- Nail, sack, thread, fork, file, tie
  - 9 – 6 – 3 – 4 – 5 – 1

- 555-7621
  - 3 files, safe, sack, nun, tie
Number Recall Practice

- **Nun, file, eight-ball, safe, Zebra**
  - 2 – 5 – 8 – 7 – 0

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Roman Room Method

- Visualize a familiar group of rooms
- In your minds eye . . .
  - Talk a walk through the rooms
  - Place one item you wish to remember in each room
Example for Roman Room Method

- Angel holding spear
- Model T Ford
- Oysters Rockefeller
- Couple waltzing under moonlight
- Burning bush
- Mafia don eating quail
- Solder with gory wound
- Man wearing dickey & gold chain
Example for Roman Room Method

- Spiro Agnew
- Gerald Ford
- Nelson Rockefeller
- Walter Mondale

- George Bush
- Dan Quayle
- Albert Gore
- Dick Cheney
Names and Faces

Who is this guy?
Names and Faces
Names and Faces
Catherine
Names and Faces
Names and Faces
Harry
Names and Faces
Names and Faces
Lisa
Memory Word List

ANY VOLUNTEERS?
Memory Word List

- Salad
- Banker
- Butterfly
- Locker

- Lizard
- Nun
- Teddy bear
- Cigar
Conclusions

• Brain aging begins early in adult life

• Stress reduction, physical conditioning, diet, and mental activity strategies have potential benefit and minimal risk

• Build your program slowly

• Improvement observed in 2 weeks so people often continue
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