MindAlert Awards

A joint program of American Society on Aging and the MetLife Foudation

Art and Dementia

2007 Special Lecture by Bruce L. Miller, MD

Table of Contents

Introduction

Bruce L. Miller, MD, explores the unique functions of our left and right cerebral hemispheres and their interaction, which allows certain neurological conditions to pave the way for the emergence of creative talent. In the lecture transcribed in this booklet, Dr. Miller describes the impact of dementia on the creative process and challenges our society to recognize and nurture the individual strengths of people with neurodegenerative diseases.

Dr. Miller presented this lecture at the 2007 West Coast Autumn Series on Aging as part of the MindAlert program. Sponsored by the American Society on Aging and MetLife Foundation, MindAlert is dedicated to sharing the latest research findings on maintaining and enhancing cognitive function in later life. Also included in this booklet are profiles of the winners of the 2007 MindAlert Awards and an annotated list of past MindAlert monographs; these awards recognize programs that promote mental fitness in older adults.

Creativity and Dementia: Artistic Talent and the Impact of Brain Degeneration

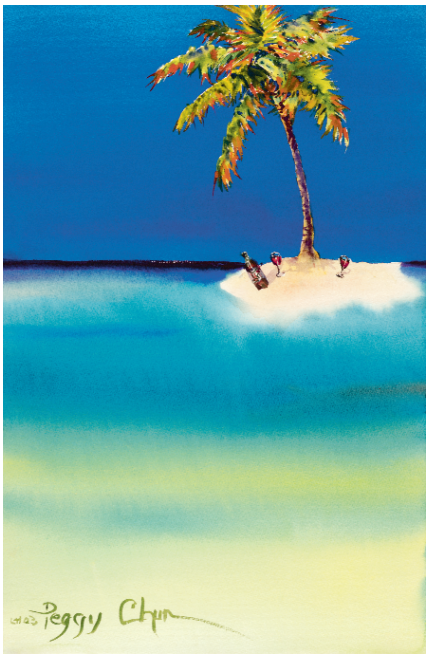
The Need to Create

PC[i] is a watercolor artist whom I admire for her talent and her determination to create despite devastating brain damage. Her identical twin sister, also a well-established artist, in the 1980s developed Lou Gehrig's disease[ii] resulting from an autosomal dominant gene that PC carries as well.[iii] After her sister died, PC was inspired to paint. She quickly became well known in her home state for vibrant paintings such as "Celebration in Banana Patch", many of which are available on local postcards. In a few short years, this middle-aged woman had become a wonderful artist.[iv]

When PC developed the first symptoms of Lou Gehrig's disease, she had difficulty painting with her right hand. To compensate, she began to use her left hand as in "Polly's Palm". As the disease progressed, PC lost function in both hands. Using her head and mouth, she persevered and created "Secret Garden" among other works. Over time, however, PC lost even the use of her mouth as a way of expressing her artistic creativity.

She continued to find new ways of producing art in the face of her disabilities and, remarkably, throughout this devastating illness, showed no symptoms of depression or despair. PC's colleagues developed a machine that allowed her to paint and communicate with her eyes. She used a "talking board" to communicate using language by fixating her eyes on a particular letter or word and painted pictures such as "Eye Heart U" (see page 6) using the software program MacDraw. Despite her destructive illness, PC has continued her creative work. The case of PC demonstrates

"Celebration in Banana Patch," *www.peggychun.com*



"Polly's Palm,"
www.peggychun.com

the importance and power of creative expression, even in people with devastating diseases of the brain.

Art and the Brain

What is art? Where do creative processes reside in the brain? How can people produce wonderful art in the presence of neurodegenerative diseases?

Art begins with an image—be it realistic or abstract, from the past or the present. During the creative process, the artist manipulates materials to actualize this mental image. Art communicates; it is original. Art is uniquely human and essentially absent in nonhuman primates, even among Neanderthals.[v] Art appeared suddenly in many sites across Europe, Africa and Australia about 40,000 years ago-just before our civilization evolved dramatically. The emergence of art suggests that something fundamental happened in the brain to allow this profound transformation in human experience.

Consider the complex art that was produced in Paleolithic caves in Europe about 20,000 years ago. In the Altamira caves located north of Madrid, one is struck by the elegance of the paintings. We call these pictures primitive, yet they contain many features of great works of art, such as individual style and deliberate artistic choices. It is clear that the artists did not simply paint what they saw. Their subject matter, whether a buffalo or a group of peers, was not physically present in the cave. These early artists used their imagination to create three-dimensional images, cleverly exploiting the curved walls of the cave to add the dimension of depth. The same is true for the marvelous cave paintings in Lascaux, France.

For neurologists, delineating the brain regions involved in artistic abilities is a modern-day search for the Holy Grail. One candidate is the prefrontal cortex, which we know has evolved extensively in humans compared to nonhuman primates. More compelling, however, is new evidence that evolutionary changes in the parietal lobe in the posterior part of the brain may have facilitated the appearance of writing and art. Support for this posterior brain theory comes from works of art created by patients with degenerative brain disease.

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Studies of stroke and trauma have provided insights into art and the brain. Traditionally, the right hemisphere is known as the nonlinguistic and, therefore, the non-eloquent hemisphere. Yet this same area clearly is expressive in terms of art production.

The right hemisphere allows us to conjure up an image of the world and to create a concrete representation of that image by using the materials that are available to us, such as paint or sound or light. It enables us to make associations among different domains-visual, auditory and emotional-and coordinates our sensory perceptions.[vi] For these reasons, the right posterior brain is critical for most artistic endeavors.

The left anterior brain probably also contributes to artistic expression but in a very different way. It is the region of the brain that enables symbolic, linguistic and conceptual functions. In addition, it allows us to inhibit our primitive impulses when they are inappropriate and to plan as well as to control motor movement. Therefore, certain modes of artistic production are specifically dependent upon the left anterior portion of the brain.

"Secret Garden," *www.peggychun.com*

Many years ago, Betty Edwards wrote a book called *Drawing on the Right Side of the Brain*[vii] in which she made the point that to get people to draw things as they really appear, it is necessary to suppress the dominant left hemisphere—the language center that thinks logically and symbolically about the world. In her art classes, Edwards asked people to draw Teddy Roosevelt. First, she would present a picture of the president right side up, and later she would flip it upside down. She observed that most people drew much more accurately using the upside down image because they are not engaging the brain's language center. Edwards reached her conclusion before scientific data were available to examine the brain in action. Today, however, we are starting to collect imaging data that support the idea that we suppress our dominant, eloquent, language hemisphere to produce visual art.

In neurology, we have known for more than 100 years that if the right posterior portion of the brain is injured, realistic copying is impaired.

What happens when the right posterior part of the brain—the region that is critical for the ability to copy—is injured? In neurology, we have known for more than 100 years that if the right posterior portion of the brain is injured, realistic copying is impaired.

Consider what happens with Alzheimer's disease, which attacks

many brain areas, including those underlying artistic creativity. A good example comes from a newly retired nurse in her late 50s who developed mild Alzheimer's disease. Although she still could construct a simple sentence, her writing was impaired. In addition,

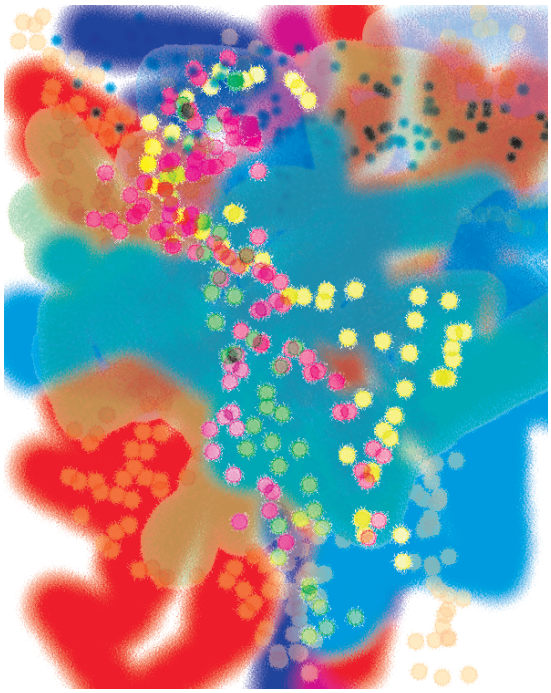
Although, traditionally, neurology has focused on the deficits of patients with dementia, studies of individuals with frontotemporal dementia have shown that some people develop new artistic skills after the onset of the disease.

she was unable to copy a diagram of simple pentagons, demonstrating that her visual-spatial ability was devastated. Can we localize the brain regions whose degeneration caused these impairments? Tracing blood flow identifies areas in the brain damaged by Alzheimer's disease. In this case, the disease primarily affected the right posterior parietal part of the brain, leading to the symptoms described above.

What happens after a few years? The patient still was socially delightful and incredibly intact emotionally despite intermediate Alzheimer's disease. She no longer could draw a straight line and could not copy, having lost the ability that one needs to make realistic representations of objects and people. A few years later, her copying ability continued to decline, and her language skills disintegrated. Is this pattern of decline unusual? No. It is typical of the five- to 10-year course of Alzheimer's disease as it attacks the posterior parts of the brain that are necessary for both drawing and written language.

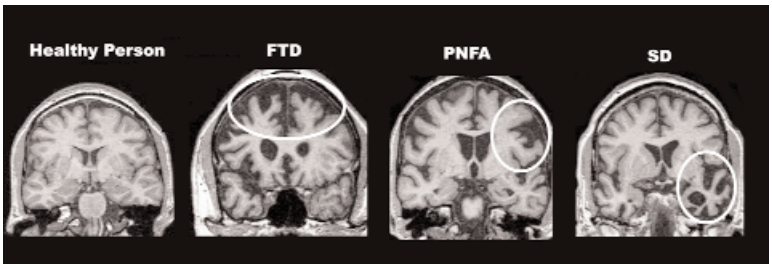
Do Alzheimer's patients paint? Indeed they do, and this activity reflects the internal strengths of the person, as well as their deficits. MF, for example, is an artist who produces beautiful, whimsical paintings that capture color in an unusual way despite having Alzheimer's disease and diminished visuospatial skills. MF is able to paint with the parts of her brain that are spared. Remarkably, her sense of color is actually enhanced.

After Alzheimer's disease, frontotemporal lobar degeneration is the most common cause of dementia in patients under the age of 65. This degenerative disease primarily affects the frontal lobes and temporal lobes of the brain, which are located behind the eyes and ears. When the disease mainly hits the frontal lobes, it is called frontotempo-



"Eye Heart U," *www.peggychun.com*

ral dementia. The major symptoms of frontotemporal dementia are behavioral and social: Patients often are impulsive or socially withdrawn, with impairments in their ability to plan and organize their thoughts and behaviors. Alternatively, when the disease mainly affects the anterior temporal lobes, patients begin to forget what particular words mean and lose general knowledge. Finally, when the disease affects the left frontal lobe, predominantly in the language areas, patients begin to lose the ability to communicate verbally. Although, traditionally, neurology has focused on the deficits of patients with dementia, studies of individuals with frontotemporal dementia have shown that some people develop new artistic skills after the onset of the disease.[viii] Visual creativity is more common when the anterior temporal lobes or the anterior parts of the fontal lobes on the left side—the language side—degenerate. How can that be? How can degeneration in one part of the brain stimulate creativity in another part of the brain?



"Four brains," UCSF Memory and Aging Center.

Degeneration and Creativity

Many patients who have a type of frontotemporal dementia that we call primary progressive aphasia, caused by damage to the left frontal lobe, have shown increased visual creativity.[ix] Figure 5 compares the brains of a healthy person to those with frontotemporal dementia (FTD), progressive non-fluent aphasia (PNFA),[x] and semantic dementia (SD). As the disease affects more of the dominant hemisphere, these individuals develop increasing problems with language. What we did not realize early in the study of this disease is that many of these people have produced artistic works of extraordinary skill.

The first patients I saw who exhibited this new artistic ability had degeneration of the temporal lobes, specifically the anterior temporal lobes. People who had more problems on the left side of the brain developed a language disorder in which words lost their meaning. For example, Alzheimer's patients often have difficulty naming an object such as a microphone, but they know what a microphone is and how it is used. Individuals with semantic dementia—the very selective degeneration of the left anterior temporal regions of the brain—lose the ability to understand symbolically what a microphone is and, of course, the ability to name it. In addition, we have learned that the right anterior temporal lobe is important for recognizing emotions from facial expressions. As a result, people with right-sided temporal degeneration also have difficulty distinguishing facial expressions of particular emotions. Initially, however, the disease

tends to spare the posterior parts of the brain that are critical for copying and drawing, as well as the frontal lobes involved in planning and organization. It is important to understand which parts of the brain are not affected by the disease, since these areas are candidates for the neural basis of artistic production.

In patients with semantic dementia, the visual system is spared, and in some case, the ability to visually represent the world is even enhanced.

Semantic dementia, which is the disease of the anterior temporal lobes described above, provides insights into where and how the brain represents knowledge. When we lose symbolic linguistic function—when we lose the concepts embedded in language—we no longer understand what a table or a light is. We lose general knowledge, the kind of information that we accumulate throughout our lives, starting in childhood.

In patients with semantic dementia, the visual system is spared, and in some cases, the ability to visually represent the world is even enhanced. Some of these patients produce extraordinary art. For example, many can copy beautifully. A person who has lost the ability to name a camel and cannot tell you what a camel is or does still can accurately copy a picture of a camel.

As the disease progresses, individuals lose knowledge about specific things. With the loss of knowledge, their drawings of these objects become less detailed and specific and more prototypical. This pattern of degeneration is typical of semantic dementia. Initially, a bird is a red-tailed hawk, then it is a bird of prey, then it is a bird, then it is an animal, and finally it is simply a thing. Often, to assess disease progression, I ask a patient to draw a dog, a cat, a fish and a bird. Over time, their ability to distinguish these different animals degenerates. A bird may look a little bit like an insect, and a fish may look quite a bit like a bird.

Layers of knowledge slowly disintegrate in patients with semantic dementia, yet they are often compelled to draw. One of my patients came into the office and felt compelled to draw a picture of me even though she never drew prior to her illness. We see this compulsion to draw again and again in patients with semantic dementia. They lose words and spell phonetically, yet they are focused on painting.

One of the first patients in whom I saw the emergence of this skill was a man from a very poor family. He had lived in New Mexico as a child and then moved to Los Angeles. He worked with cars and never painted. Then, in the context of developing frontotemporal dementia with Lou Gehrig's disease,[xi] he started painting. He took a course in a local park and produced a series of beautiful pictures from his childhood. We see this ability emerge across cultures.

Frequently, drawings of faces are distorted. We have come to realize that for many patients with degeneration on the right side of the brain, the ability to perceive the emotion in a face disappears. The anterior temporal lobe

is the brain region that allows people to understand the visual presentation of emotions. In our clinic, we test the ability of patients with semantic dementia to name facial emotions. While this task is relatively easy for most of us, patients are totally baffled by negative emotions. They are much better at positive-emotion recognition. This dichotomy between positive and negative emotional identification seems to correlate with damage to one tiny structure in the brain: The right amygdala seems to be specialized for negative emotions. The more we learn about the brain, the more we realize how the different parts of the brain are specialized. If you perceive emotions in a unique way and you have artistic inclinations, then you likely will create unique images on a canvas.

We also are studying how patients with semantic dementia look at pictures. Using an image with a vanishing point—like a picture of railroad tracks—we record eye movements of normal patients, those with frontotemporal dementia and those with semantic dementia. The visual strategy used by individuals with semantic dementia does not follow the conventional rule of focusing on the vanishing point. Rather, it appears that they look randomly at every little section of the railroad track, and their eyes jump from one place to another. In trying to understand why these people have an incredible enhancement of visual ability, we believe that the way they literally look at the world may be one factor.

Similarly, a patient with semantic dementia looks at a face differently than we do. Most of us spend a lot of time looking at the eyes because that is the part that tells us the most about emotion. Individuals with semantic dementia, however, have difficulty focusing on eyes. In fact, they tend to avoid looking at eyes and will instead look everywhere else.

Artists With Degenerative Brain Disease

Three artists who were compelled to paint despite their degenerative brain disease illuminate our theme of why humans produce art.[xii] The first two individuals had a condition called progressive non-fluent aphasia. Like semantic dementia, it affects the left side of the brain more than the right, but damage is focused in the frontal area of the left side. Over time, these patients tend to get progressively quieter, with more and more trouble getting words out. Often, every other aspect of their neurological function is intact. Both of these people were artists before they got sick, and for both, there was an extraordinary transformation of their creativity in the context of disease.

Both of these people were artists before they got sick, and for both, there was an extraordinary transformation of their creativity in the context of disease.

JC, born in Taiwan, was an artist all her life. Initially, she created very traditional Chinese art. After she earned a master's degree in fine art, her perspective completely changed. At one time, she was influenced by Jackson Pollock and later seemed to have a yearning to integrate her early experi-

"Unraveling Bolero," courtesy *Brain* (1994).

ences in Chinese art with her later work in Abstract Expressionism. She created an extraordinary set of calendar figures and then stopped painting for about 15 years. As JC developed progressive non-fluent aphasia, she started to paint again. She produced huge dragon figures about once a month. These covered entire walls and were spectacular in their detail. As her language skills worsened, JC became progressively more aphasic and started combining colors in a new way.

In JC's subsequent work, faces became distorted. Perhaps, this is the way she saw the world. Then, in the last year of her life, JC became absorbed with music. She went to dance clubs, listened to jazz and tried to capture the music in her paintings. Although speechless and unable to understand much language, she was, nonetheless, able to represent music in her art. Although pre-morbidly JC was a very fine artist, her work became wilder, more disinhibited and freer with the progressive aphasia. The most exciting and original pieces in her entire life were produced when she was almost mute. Loss of function in one area at the very least spared her ability to produce art.

Another artist was AA. Although interested in drawing and painting from an early age, much of her adult life was spent in left-brain activities as a cell biologist who held university teaching and research positions until one of her children was seriously injured in an accident. Thinking that he would need years of specialized care, AA gave up academia and decided to pursue painting as a full-time career.

Three years later, AA created a painting that she titled "Unraveling Bolero". It was her attempt to visually represent the musical composition "Bolero" by Maurice Ravel. Each color is a different note, with the top the treble and the bottom the bass. The artist takes the viewer through each meter in the piece methodically, capturing not only the changes in notes and the rhythmic repetition but also the crescendo. Notes become longer as the piece gets louder. A sudden change in key is represented in fluorescent pink. In each bar, the favorite note has a different color, showing how methodical and meticulous she was.

Although premorbidly JC was a very fine artist, her work became wilder, more disinhibited and freer with the progressive aphasia.

People ask me if "Unraveling Bolero" is an example of synaesthesia, that is, if the artist was seeing music as colors. Although we are not sure, it is clear that AA represented visually the music

she heard. It is clear, furthermore, that a sudden change in her art occurred in the early stage of her disease. We have an image of her brain shortly after she created the painting, before she was diagnosed with progressive non-fluent aphasia. It is significant that the left anterior parts of the brain show atrophy, while the posterior right part of the brain so critical for trans-modally associating music, sound and feeling is statistically larger compared to 20 healthy control subjects of the same age. The artist's pronounced brain asymmetry is one possible reason that she was able to produce a very creative and unique work of art.

Over time and with progression of the disease, AA's painting changed. Her work became flatter and less complex, although it still was gorgeous. For example, using her botanical knowledge, she created beautiful representations of arbutus leaves found in her hometown. Even when she was completely mute, she still was making beautiful pictures of the world around her.

We believe that AA's most complex work was created in the early stages of her progressive non-fluent aphasia. One might argue that intense creativity heralded the onset of her illness. For reasons that seem almost mystical, she was compelled by Ravel's "Bolero" six years before manifesting her non-fluent aphasia. Notably, Ravel composed "Bolero" six years before developing progressive non-fluent aphasia. We believe that they died from the same disease.

The third artist is DB, a young man who has autism. When he was about two years old, DB became obsessed with drawing horses. He drew them repetitively, and some are perhaps the best he ever produced. He was very much like my semantic dementia patients who were compelled to paint. There was very little artistic influence other than the internal imagery in this young boy who was developing autism. He had profound language deficits yet was preoccupied with

"Arbutus Leaves," courtesy *Brain* (2002).

horses. When he was about two and a half or three years old, he drew in a Cinderella style. Then, in his Dr. Seuss period around age five, DB created Dr. Seuss-like drawings in his own whimsical way and even had a strong sense of the vanishing point. At one time, I took DB into the hospital because we thought he might have seizures. He was closely monitored, and the nurse drew blood. DB did not say a word the whole time that he was in the hospital but drew a powerful picture after he went home. He showed the nurse looming over him in a devilish pose, ready to draw blood, and visually expressed his own intense emotional experience. DB produces art—is really compelled to produce art—without any formal instruction.

A medical student who worked with me was impressed by the similarities between cave paintings and DB's early work. We had the somewhat romantic idea that the first human artists—those who produced the earliest works of art without any training whatsoever—almost certainly were asymmetric, almost certainly were different from the people surrounding them. We wondered whether they were a little bit like DB, without language, compelled to paint and draw, and despite all of the exigencies of living in a very tough world, spent their time creating beautiful cave paintings.

Art is possible, even enhanced, with some types of neurological disease. And art in dementia is a model for recognizing strengths, not just weaknesses, in all of us.

Conclusion

Art reflects how the emotional, perceptual, conceptual and motor systems operate in individual artists. It offers insights into the workings of the brain. Art is possible, even enhanced, with some types of neurological disease. And, art in dementia is a model for recognizing strengths, not just weaknesses, in all of us. ❖

Q & A

Dr. Miller welcomed questions during the presentation, and this section includes his responses.

Q1: Do you ask patients to draw pictures of animals or do they copy from a drawing?

A: We actually show a variety of pictures from something called the Boston Naming Test, and we ask them, What is that? The patient whose work I discussed could not name the camel-but, much to my surprise, drew it perfectly. This example captures the really profound dissociation between being able to name something and being able to see and draw it in a realistic way.

Q2: In the early stages of degenerative disease, without doing a brain scan, can you tell the difference between Alzheimer's disease and frontotemporal dementia?

A: Perhaps 90 percent of the time, we should be able to separate these two diseases pretty well. Alzheimer's disease tends to hit memory areas in the brain, so often the very earliest symptoms of Alzheimer's disease are loss of memory—sometimes visual/spatial, such as getting lost. Frontotemporal dementia, if it affects the right side more, causes an almost totally behavioral syndrome, such as a loss of sympathy and empathy for others, disinhibition, loss of insight into problems. If the disease is on the language side of the brain, then there is progressive loss of language and speech.

Q3: Have you looked at art in the context of mental illness and schizophrenia?

A: There was tremendous interest in this topic at the turn of the century. Some of our greatest artists, such as Paul Klee, were profoundly interested in art created by individuals with schizophrenia and people who were hospitalized in mental hospitals. This brings up another great theme—that people who have very asymmetric brains with great deficits also may have great strengths. I have a hunch that Paul Klee might have said that he never would have produced the art he did if it was not for the work he saw by patients in mental hospitals that really inspired him.

Q4: What parallels are there for people who work, not in painting but in three-dimensional media, such as sculpture, ceramics, wood or fiber?

A: Many of these patients become very visually preoccupied, so it is not just paintings that these individuals produce. For example, some of them have extraordinary gardens. Indeed, some of the most beautiful gardens that I have ever seen have been tended to perfection by patients with semantic dementia. One of my patients with semantic dementia produced sculpture, but I must say that it is not typical—and I am not sure why.

Q5: Is artistic ability latent until it emerges when a portion of the brain is no longer functioning or does a new ability to create develop that did not exist before the disease took its toll?

A: It is possible that these skills are dormant in all of us and ordinarily are suppressed by our dominant hemisphere. The brain may change as a degenerative disease, such as progressive aphasia, progresses.

Q6: What are the implications for creativity in aging with the general slowing of processes?

A: We do not have to look very far to see hundreds of great artists producing some of their finest work late in life. For example, Eugene O'Neill wrote his most beautiful, powerful plays fairly late in life when he already had devastating Parkinson's disease. George Bernard Shaw produced beautiful writings into his 70s. In our business community we are seeing incredible creativity related to philanthropy in people who are much older. As we age, and age in a healthier fashion, we are going to see more and more examples of creativity flourishing in people who earlier in life did not show this ability.

Q7: Where do you want this research to go in the future?

A: There is a lot of interest in these issues. If there is one important concern for me, it is not that some patients with degenerative disease can produce art. Rather, the key is that these diseases hit very specific systems in the brain and tend to spare other parts. This understanding has profoundly transformed the way I think about these diseases. Also, increasingly we are going to have powerful therapies for these degenerative diseases. More and more I focus on the strengths of our patients, as well as the weaknesses. It is important to consider our patients' strengths as we begin to have

therapies for degenerative diseases that preserve the brain and may even allow the brain to rehabilitate itself. These are two general areas related to Alzheimer's that especially interest me.

An important lesson is that we all have asymmetric brains. It is a myth that if we used 90 percent of our brains, we would do much better. In fact, we only use 10 percent of our brains at any moment. There is a really good reason for that. We have different systems in the brain that turn on and off all the time. If I am writing a paper, the last thing in the world I want is to be flooded with a series of visual images that are interfering with my writing. Conversely, if I am in the midst of painting, the last thing I want to do is simultaneously give a speech.

All of this has pointed out to me how much real artistic creativity is driven by brain asymmetry, with lots of implications for our society. It is important to how we think about children at a very early age, what their strengths are, what we want to do with their strengths. Do we want to make every person the same? Are we looking for a homogenous brain? Or are we looking for people who follow their own inherent asymmetries? These are some of the areas that I seriously consider as I think about my patients who, paradoxically in the setting of degenerative disease, rather than show deficits in artistic ability, actually show enhancements. ❖

Endnotes

[i] The names of individual artists are withheld for patient confidentiality.

[ii] Amyotrophic lateral sclerosis (ALS), sometimes called Lou Gehrig's disease, is a progressive, fatal neurodegenerative disease caused by the degeneration of motor neurons, the nerve cells in the central nervous system that control voluntary muscle movement. An autosomal dominant gene is one that occurs on an autosomal (non-sex determining) chromosome.

[iii] PC's mother and grandfather also died of ALS.

[iv] More information about the artist and her gallery of illustrations is available at *www.peggychun.com*.

[v] Neanderthals are a species in the genus Homo that evolved prior to the appearance of Homo sapiens.

[vi] Perception is the process of acquiring, interpreting, selecting and organizing sensory information.

[vii] Originally published as *Drawing on the Right Side of the Brain* (New York: J.P. Tarcher, 1979); see *The New Drawing on the Right Side of the Brain* by Betty Edwards (New York: HarperCollins, 2001).

[viii] "Enhanced Artistic Creativity With Temporal Lobe Degeneration" by Bruce L. Miller et al.; *The Lancet* (1996, vol. 348, pp. 1744–1745).

[ix] In an earlier paper, I noted that of 12 patients showing emergence of musical or visual ability, nine had semantic dementia, which affects the left anterior part of the temporal lobe. (See "Functional Correlates of Musical and Visual Ability in Frontotemporal Dementia" by Bruce L. Miller et al.; *British Journal of Psychiatry* (2000, vol. 176, pp. 458–463).

[x] Progressive non-fluent aphasia (PNFA), marked by degeneration of the cortex in language-dominant frontal/opercular and surrounding oral-motor areas, is discussed in the following section.

[xi] Frontotemporal dementia and Lou Gehrig's disease sometimes co-occur.

[xii] Examples of the art created by these and other artists with degenerative brain disease are available at *www.memory.ucsf.edu/Art/gallery.htm*.

For More Information

Websites

The University of California Memory and Aging Center
http://memory.ucsf.edu

The Art of Dementia: BBC World Service interview with Dr. Miller
www.bbc.co.uk/worldservice/sci_tech/highlights/dementia.shtml

Publications

Miller, B. L., and Cummings, J. L. (eds). 2007. *The Human Frontal Lobes: Functions and Disorder*. New York: The Guildford Press.

Miller, B. L., and Hou, C. E. 2004. "Portraits of Artists: Emergence of Visual Creativity in Dementia." *Archives of Neurology* 61(6): 842-844.

Seeley, W. W., et al. 2008. "Unravelling Bolero: Progressive Aphasia, Transmodal Creativity and the Right Posterior Neocortex." *Brain* 131(1): 39-49.

About the Author

Bruce L. Miller, MD, is Professor of Neurology at the University of California at San Francisco (UCSF), where he holds the A.W. and Mary Margaret Clausen Distinguished Chair. Dr. Miller is the clinical director of the Memory and Aging Center (MAC), which is funded through the State of California and the Koret Foundation, at UCSF. The busy UCSF dementia center links comprehensive patient evaluations to basic research in neuropsychology, neuropsychiatry, neuroimaging and genetics. Dr. Miller's goal is the delivery of model care to all patients who enter the clinical and research programs at the MAC.

Dr. Miller is a behavioral neurologist with a special interest in brain and behavior relationships and has focused his work in the area of dementia. He has many years of experience directing pharmaceutical trials for patients with Alzheimer's disease and currently directs the UCSF treatment trial for Creutzfeldt-Jakob disease with quinacrine in conjunction with Drs. Stanley Prusiner and Michael Geshwind.

At UCSF, Dr. Miller directs an NIH-funded program project on frontotemporal dementia (FTD) called "Frontotemporal Dementia: Genes, Images and Emotions." His work with FTD has emphasized both the behavioral and emotional deficits that characterize these patients, simultaneously noting the visual creativity that can emerge in the setting of FTD. The recognition that dementia patients have many strengths is a guiding principle of the Memory and Aging Center.

Dr. Miller is author of the book *The Human Frontal Lobes* and has extensive publications regarding dementia diagnosis and treatment. For nearly two decades, Dr. Miller has been the scientific director for the philanthropic organization The John Douglas French Foundation for Alzheimer's Disease. He is actively involved in patient care at the UCSF clinics and hospital and teaches extensively in the medical school. As well, Dr. Miller oversees the Behavioral Neurology Fellowship at UCSF.

2007 MindAlert Awards

The ASA-MetLife Foundation MindAlert awards program was established to recognize innovation in mental fitness programming for older adults. These three awards recognize programs found in nonprofit organizations demonstrating innovation and effective applications accessible to diverse communities based on research. Each shows potential for replication in other communities by ease of application and financial feasibility. Each year winners are chosen in three categories:

1. Lifelong Learning/Third Age Educational programs.
2. Programs specifically focused on enhancing mental fitness for the general population of older adults.
3. Programs designed to enhance mental fitness specifically for early stage cognitively impaired older adults.

The winners of the awards are recognized at the MindAlert luncheon held during the annual conference of the American Society on Aging and the National Council on Aging. Each winner provides a brief overview of their program at the luncheon.

For more information on the MindAlert Program, including how to submit an application for the MindAlert Awards, visit *www.asaging.org/mindalert*.

Programs Specifically Designed to Enhance Mental Fitness for Cognitively Impaired Older Adults

Songwriting Works

Songwriting Works, Inc.
Port Townsend, Washington

Songwriting Works advocates for and provides full access to creative music programs for a diverse spectrum of elders with cognitive impairments. Songwriting Works gives elders with dementia new forums for self-expression, experience in the arts, and an opportunity to leave a legacy of story and song. Programs include workshops and events serving elders; and training, tools, and consulting for caregivers and others interested in increasing communication and quality of life across the spectrum of age, culture, and ability.

Professional songwriter-facilitators, trained in intergenerational music collaboration, can engage three to 30 elders of diverse cultural and educational backgrounds and physical and cognitive abilities in an inclusive process that combines storytelling, musical improvisation, and consensus building with fundamentals of song composition. Each of ten workshops of 40–75 minutes is self-contained, so the benefits of

the process are available to participants regardless of whether they have participated in sequential sessions or recall their prior participation. Programs begin with familiar songs leading to crafting a new song.

Through highly interactive exchange, the facilitator solicits ideas for topics, themes, and musical genres. Elders' input directs the session, with remarks recorded on easel pads verbatim; melodies spring from the group and are repeated and refined to match words. Group attention is kept in focus by the rhythmic pulse of a guitar; frequent repetition of gathered words; rhyme and word play; open questions; humor; passion; and sincere, enthusiastic acknowledgement of each participant.

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Educational Programs Focused on Enhancing Mental Fitness for the General Population of Older Adults

Everyday Memory Clinic

Institute on Aging at the University of Florida
Gainesville, Florida

The Everyday Memory Clinic (EMC) has trained over 400 older adults in using learned memory skills. Success of the program is shown in increased confidence and feelings of control over memory, increased use of memory strategies, and improved memory test scores. Gains that participants have made are retained six months or more, a result previous memory-strategy training models have not been able to achieve.

Specifically, the program operates in small-group classes using the *Everyday Memory Workbook*, where leaders incorporate key elements: use of learned memory skills, extensive practice to master these new skills, encouragement for daily memory work with regular homework, and setting of personal goals for practical in-home memory activities, which bolsters confidence so that older adults feel in control. The program focuses on learning (not on perfect performance), beginning with easier tasks and then building to more challenging activities. The model has proved effective in diverse populations, including African Americans, Latinos, and Caucasians, people with lower income levels and those with greater resources as well as various education levels.

This practical model enhances basic memory skills required for independent living.

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Lifelong Learning and Third Age Learning Programs Where Mental Fitness Is Implicit

Intergenerational School

The Intergenerational School
Cleveland, Ohio

The Intergenerational School (TIS) is breaking new ground in the fields of public education and intergenerational programs as a model of lifelong learning, intergenerational health, and purposeful aging. The only known public intergenerational school in the United States, TIS is also the only community school in the state of Ohio to receive a report card rating of "excellent" for three consecutive years.

Built into the structure of the educational experience, older adults and other community members participate daily with TIS students K–7 through a number of intergenerational learning programs. The intergenerational component partners older adults and other volunteers with children to enhance both groups' knowledge of the learning process and to create opportunities for intergenerational sharing, especially in areas relating to literacy, computers, and math. Other intergenerational programs include reading mentors, natural history museum explorers, gardening, field trips, and narrative histories. The work of trained volunteers, while cognitively stimulating for the adults, improves children's overall academic skills and instills a profound cross-generational caring and respectful relationship.

Each classroom also partners with a long-term-care facility for regular visits, which allows the children and residents to interact through art, song, literature, and storytelling.

The Intergenerational School bridges gaps among racial, cultural, ethnic, socioeconomic, and age differences by bringing together a diverse range of participants to be a part of this community.

At TIS, "intergenerational" is not meant to only include the young and old. TIS

focuses on creating a learning environment for people of all ages to work in harmony with one another and benefit from one another's personal wisdom. Students build a foundation for lifelong learning with the help of older volunteers who exhibit their love of learning throughout the lifespan. The school's volunteers frequently interact with one other as they share in one common goal: to learn and to help others learn in this unique educational community.

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Awards Review Committee

The American Society on Aging wishes to thank the committee members who dedicated many hours to reviewing the applications for the MindAlert Awards:

Dean Blevins (Chair), North Little Rock, AR; **Jo Arnold**, Portage, MI; **Barbara Ginsberg**, Brooklyn, NY; **James E. Birren**, Pacific Palisades, CA; **Ruth Flexman**, Wilmington, DE; **James Frasier**, Petersburg FL; **Pamela Huff,** Portland, OR; **Darby Morhardt**, Chicago, IL; **Cheryl Svensson**, Corona del Mar, CA; **Sharon Sokoloff**, Waltham, MA; **Robyn Yale**, San Francisco, CA.

Past MindAlert Special Lectures

The annual MindAlert monographs from 2001 to the present are available on the American Society on Aging website at *www.asaging.org/mindalert* as free, easily downloadable PDF files. Past monographs:

Good News About the Aging Brain!

Nationally known brain researchers Marian Diamond and Arnold Scheibel describe their groundbreaking studies of brain function and the optimistic implications for successful aging. (2001)

Brain Health From 1 to 100

Paul Nussbaum, a leading clinical neuropsychologist, describes what he refers to as a health promotion opportunity of unprecedented stature: the ability to foster our own brain wellness for healthy, functional aging. (2002)

Centenarians: Lessons on Living Long and Living Well

Head of the renowned New England Centenarian Study, Thomas Perls shares the findings of his research and talks about how we all can make our later years healthy, vital ones. (2003)

Uniting the Heart and Mind: Human Development in the Second Half of Life

Gene Cohen, a pioneer in the field of creative aging, explains the implications of his four developmental stages of late life and how these phases represent a richly creative period, full of personal growth and societal engagement. (2004)

Intellectual Functioning in Adulthood: Growth, Maintenance, Decline, and Modifiability

Husband-and-wife research team K. Warner Schaie and Sherry L. Willis, who gathered data from thousands of people over long periods of time in the Seattle Longitudinal Study, shed light on the differences between elders who maintain their intellectual functioning into late life and those whose cognitive abilities decline. (2005)

The Benefits of Memory Priming: Effects of Guided Autobiography and Reminiscence

James Birren, a longtime researcher and expert on guided autobiography, enumerates its many benefits for elders and the organizations they frequent and outlines research issues provoked by the qualitative analysis of autobiographical data. (2006)

About the MindAlert Program

The MindAlert Program seeks to disseminate information on research and innovative practices that assist older adults in taking steps to maintain and enhance cognitive and mental function. The program, established by the American Society on Aging (ASA) in 2001 and supported with funding from MetLife Foundation, has the following components:

MindAlert Awards Program

The ASA-MetLife Foundation MindAlert awards program recognizes nonprofit organizations that have developed innovative and effective mental fitness programs for older adults, accessible to diverse communities and based on research. Each program shows potential for replication in other communities by ease of application and financial feasibility. Winners are chosen in three categories:

1. Lifelong Learning/Third Age Educational programs.
2. Programs specifically focused on enhancing mental fitness for the general population of older adults.
3. Programs designed to enhance mental fitness specifically for early stage cognitively impaired older adults.

MindAlert Speakers Bureau

The MindAlert Speakers Bureau provides $1,200 grants for organizations to host daylong workshops on innovative approaches to brain health. Organizations choose from a directory of trainers who have received the MindAlert Award (see description above).

MindAlert Lecture Series and Publication

The MindAlert Lecture features a presentation on the latest research findings for maintaining and enhancing cognitive function in late life. Each lecture is accompanied by a publication based on the lecture. Past lecturers include:

James E. Birren—*Benefits of Memory Priming: Effects of Guided Autobiography and Reminiscence*

Gene D. Cohen—*Uniting the Heart and Mind: Human Development in the Second Half of Life*

Paul Nussbaum—*Brain Health From 1 to 100*

For more information about the MindAlert Program, visit *www.asaging.org/mindalert*, or contact the American Society on Aging at mindalert@asaging.org.

The American Society on Aging

The American Society on Aging is the largest association of professionals in the field of aging in the United States. Founded in 1954, ASA seeks to promote the well-being of older adults and their families by enhancing the abilities and commitment of those who work with them. To that end, ASA sponsors a wide variety of conferences, networking opportunities, and Web-based training. The organization also publishes a quarterly journal, a bimonthly newspaper, seven quarterly newsletters, and an e-mail newsletter for its members. To obtain more information on ASA or to join, call (800) 537-9728 or visit *www.asaging.org*.

MindAlert Program Sponsor:

MetLife Foundation

MetLife Foundation, established in 1976 by the Metropolitan Life Insurance Company, has been involved in a variety of aging-related initiatives. Since 1986, the foundation has supported research on Alzheimer's disease through the MetLife Foundation Awards for Medical Research and has contributed more than $9.5 million to efforts to find a cure. In addition, the foundation has provided support for a traveling exhibit on memory; a public-education video for use by caregivers and families of people with Alzheimer's disease; and support for healthy-aging projects addressing issues of caregiving, intergenerational activities, health and wellness programs, and volunteer opportunities. MetLife Foundation supports health, education, civic, and cultural programs throughout the United States. For more information about the foundation, visit *www.metlife.org*.

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