SOARING Rx

BY DR. DANIEL L. JOHNSON

The Vintage Pilot

"My mind isn't working;
I know it's not right.
It makes me angry!
I used to be a smart lady!"
– D.B., retired teacher, age 94

We all worry about the losses that aging may bring to us. We see that others sometimes fail to recognize their own loss of competence, and worry that we might fail to do so. This would be a humiliation worse than the new inability, for we all prefer to hide our shame.

How can we understand that anyone is losing competence?

Unintended, uncharacteristic mistakes are the best clue to impairment. But most mistakes don't stem from new inability, and most are caught. We can't assume that any mistake by an old pilot means lost ability.

Poor judgment is the most serious mistake. All instances of poor judgment should be reviewed, not only those that are damaging. Asking any pilot, of any age, to explain ill-conceived actions is an educational act. Repeated poor judgment at any age requires action.

We must recognize changing ability and adapt to it. Aging's losses are gradual. There's time to adapt. Disease may cause catastrophic loss. That's not this month's topic.

Sallie Does Aerotow

Sallie came to the airport one sunny June day to learn to fly aerotow. She'd had a few lessons, all short pattern flights launched behind a retired police car. Today, Patrick, her young instructor, had arranged for a tow plane. She was apprehensive.

With the tow pilot came Larry, along for the fun. Larry was a revered old soaring instructor. Ex-Air Force, ex-airline, longtime soaring guru. Patrick, wanting to give his favorite student the chance to learn from decades of wisdom and experience, eagerly asked if he'd do her instruction. Of course he agreed.

Larry handled the takeoff, having Sallie follow him on the controls. He demonstrated the proper tow position, then said, "Your glider!"

The glider seemed to her to have a will of its own. It turned. It climbed. It dropped. She reacted, first tentatively, then hard and awkwardly. She felt completely out of control. Up and down, back and forth, jerking around at the end of the rope. She thought the glider might break, and they'd tumble to the ground and crash. She reacted desperately, hoping not to die.

In back, Larry was quiet. Finally, he said, "OK, release!" Sallie pulled the yellow handle, and the glider, no longer riding the whip's tip, settled down. They flew a few turns, and landed.

As they waited for the car to tow the glider back to the launch point, Larry said, "How many tows have you done?"

"Well, none behind an airplane."

"I thought Patrick said you'd done 20 tows."

"I've done about 18, behind a car. But I haven't done any all by myself. I'm scared."

The car pulled up, they hooked up the glider, and started walking the wing along the runway. Sallie said, "You're limping. Are you OK?"

"Yes, I'm fine. I've got a bad hip. Gonna haveta get it replaced pretty soon, after the season is over."

They walked further. Sallie watched him carefully as they chatted. Then she said, "Are you having some trouble with your balance? You've stumbled a couple of times."

"I'm OK," said Larry. "Just a little tumor on the nerve from the ear."

"Is it OK to have a brain tumor and be flying?"

"Oh, sure. It don't bother me any. By the way, if you can give me a ride home, I'd like to show you my airplanes."

"Sorry. I'm going in a different direction." *A different direction in a lot of ways*, she thought.

Do you see any problems here? There are at least a half-dozen. (Please don't send the editor any emails saying that this story is not believable.)

This story illustrates two important points:

1. We can be impaired by *disease* or by *aging*. Both are more likely as time passes, but only one is inevitable. And inexorable.

2. The severest and most dangerous loss is of *judgment*.

Caution: It's important to be clear that *aging* is different from *senescence*. Aging does involve a gradual loss of reaction time (mental and motor), resilience, energy, flexibility, and more.

Senescence is a slow-motion, catastrophic falling apart of our physical being. If a person remains healthy, there will come a time, *regardless of disease*, dependent on diet, activity, and genetics, when everything begins to fail. In my experience, this process takes about 3 years, and usually happens over 90 in my area of the world, except in smokers, who may start this in their mid-70s.

Senescence involves a fairly rapid loss of physical strength, appetite, vigor, and general physiological function. It can't be repaired or remedied. It always leads to natural death. It's the bitter end of aging. In evaluating an individual, it is very difficult to discern amongst the effects of medications (social or prescribed), disease, and lifestyle.

How to Recognize the Wrong Stuff

I've spent my whole career trying to learn the answer to this, and it is this: the only consistent clue we have to loss of cognitive ability is repeated *inadvertent mistakes*, especially uncharacteristic ones. The great difficulty here is that we all continually make mistakes – which

we typically catch in time – so it's hard to know when a new cause of mistake-prone-ness is irremediable.

The most common causes for loss of ability are the correctable ones: lack of practice, distraction, fatigue, dehydration, hypothermia, hypoxia, illness, infatuation, and so on. This is true even for the elderly.

In my experience, most common is loss of *skill* due to lack of *practice*. If we've only lost skill, it comes back with retraining and practice.

If we've lost *ability*, retraining isn't helpful. Here's where flying dual with an instructor or skilled friend can help figure this out.

Still and all, there is a gradual loss of ability throughout middle age. Two decades ago, when I first reviewed the literature on pilot performance and aging, Age Forty was the great dividing line. Twenty-ish pilots do have slightly better reflexes, coordination, and memory than Forty-ish pilots. But the older pilots are safer. Maturity, experience, and training.

Most of the pilots that I see nowadays, even the new students, are over 50. This means that we have more and more opportunities to ask searching questions about ourselves and others.

(I want to say that age limits for certification or work seem purely an excuse to avoid stressful conversations, at the cost of putting down brilliant people prematurely.)

I'm going to focus this essay on cognitive loss, especially judgment, because with other losses, people generally recognize the change and adapt to it. Pilots change their practices or stop on their own. I've had many pilots say, "I'm going to sell the airplane." *Why?* "It's time."

It's important that *cognitive* doesn't involve only knowledge and abstract thinking, memory and attention. The brain manages coordination, balance, movement, and all perception. The nervous system runs our entire being, so most *ability* is somehow related to the brain.

And there's training. True is the old joke: *Good decisions come from sound judgment. Sound judgment comes from bad decisions.* We do learn from our own mistakes and those of others. This is why telling stories – hangar flying – is so important, and it's why this magazine is important: learning. *Inability to improve with training* is another clue to impairment.

This is why observing others' *response* to their mistake is much more important, in assessing *ability*, than is observing the *fact* of their mistake.

Aging's Losses Are Subtle

A retired college professor and administrator now in his 80s didn't retire until 78 because he was having so much fun teaching. Now he is frustrated, as are many his age, with vague "dizziness." Usually, this is simply due to the fact that the very complex control of coordination and balance isn't as functional as it used to be.

I said to him, "Look. When you

were 24, playing outfield, you could tell about where the ball was going to go as soon as the batter began to swing." ("*Yes*," he said, grinning.) "And you ran at top speed, keeping your eye on the ball until you brought it into your mitt." ("*Exactly*," he said, delighted by the memory.) "You can't do that now." ("*I get your point*," he said.)

Sadly near life's end, it may take all of our athletic ability to sit up at the end of the bed, stand, turn, and walk the well-trodden path to the porcelain in the dim pre-dawn light.

This is an example of the gradual abatement of physical capacity as we age. Fortunately for the experienced pilot, flying an aircraft has become all but automatic by the time we're old, and in any case, normally never requires the reflexes and accuracy of competitive athletics. Also, most flight events happen much slower than a curveball comes to the plate, so there's some time to think and adjust.

This is the most important point about aging: *Recognizing* our changing abilities and *adapting* to them.

Though senescence is inevitable, *when* it occurs, and whether life is enjoyable, depends for most of us on *lifestyle*: daily, pleasant to vigorous exercise; a diet centered in fruit, whole grains, and colored vegetables; social groups; and offering and accepting love (personal interest and kindness).

How Will We Know?

There's an old joke – "The best thing about dementia is that the person doesn't know what's happening." I can tell you, after practicing primary-care medicine for 37 years, that this is absolutely not correct. All but the severest know that *something* is wrong. Even when dementia is incapacitating, nearly all understand there's loss, even as they lose the ability to articulate what's happening.

Hence the quotation at the top of this column. The woman who said this has been in an assisted living home for almost a year; is able to do nothing for herself reliably but eat a meal set in front of her. She has a college degree and was an award-winning teacher. *There but for the grace of God go I.*

We all fear loss of the right stuff, whatever that happens to be for us. It's shaming and frustrating. We avoid talking about it, we avoid admitting it. Optimistically, we believe tomorrow will be better. We're just too tired. The doctor will figure out something. There must be a pill. And so on.

My experience is that nearly everyone actually recognizes that there is loss and adapts to it. People normally limit their own driving; pilots sell airplanes or fly only with a partner. Because it's humiliating, they don't talk about it.

We would never say, "Hey, Bart, guess what! I'm losing it!" Anyway, Bart would be embarrassed, as if we had brought up the quality of a bowel movement. Anyway, what can we Barts of the world say? "Well, yes, I've noticed."

This is not normal back-fence conversation. Yet it's kind and loving to ask, "How has this affected you?" gently, and listen, and ask, "What are you doing about it?"

Because people normally adapt to change, we haven't seen a rash of dementia-related crashes. What we do see is aircraft moldering away in storage.

Problem People: Judgment

The problem pilots, CEOs, doctors, accountants, and attorneys (to name some important ones I've watched tragically go down) are those few whose *judgment* fails first. This hits hardest those they lead or serve.

As we know, some people don't have very good judgment at any age, stuck in the 9-year-old-male mode forever. Or maybe the Y chromosome is simply defective, as many women suspect. Still, it's essential that we assess each other's judgment, whether at work or in recreation. It's a safety net. (How we bring up concerns *is* important.)

Some strengths make insidiously defective judgment especially hard to recognize.

1. ***Creativity***. Out-of-the box thinking is the key to invention, the key to marketing breakthrough, to success in

entertainment, in writing, and in many activities that involve analytical thinking. A truly novel idea feels crazy or inappropriate at first. The CEO or VP of R & D who begins to show dementia will simply remain out of the box, unrecognized, until the ideas truly make no sense. Will others in the company (at higher levels) recognize this before damage is done? (Underlings notice quickly, but are neutralized if they insult superiors, even if the emperor has no clothes.)

2. ***Wit.*** Humor, at its essence, involves transgression. The best humor involves carefully constructed boundary-crossing, sensitive to the response of the audience. Lost cognitive ability shows up as careless or awkward humor in someone who was once subtle, or humor that no longer considers its audience.

On the other hand, witty people can very successfully mask dementia by pretending that awkward or inappropriate statements were simply failed humor.

3. ***Insight***. Genius involves being able to quickly analyze a complex situation and point out its essence. A few of my friends are amazingly able to listen to a brief summary of a challenging problem and seconds later, in a brief paragraph, reduce it to its essentials. When cognitive loss begins, this *eureka* experience tends to disappear. Often its absence is not even noticed because the skill was so exceptional. The genius has become an ordinary person.

In general, what I've observed is that the bright person first goes through what I call "intellectual simplification." The jokes become coarser, less subtle. The insights less penetrating and analytical, more mundane. The creativity becomes formulaic or disappears.

The person whose conversation was once replete with tidbits of information, whose phrases were multilayered and complex, whose analyses were interesting and challenging to follow, becomes uninformative, single-layered, and simplistic. Conversation goes from fact and analysis to experience and feelings.

This is not itself dementia – it's an early warning sign that we should watch for poor judgment.

Early dementia is analogous to the effect of alcohol. Have you ever known anyone who was more interesting after the third drink? This brings a similar intellectual simplification, coarseness, and potential for poor judgment.

Alcohol and other sedative drugs (think Benadryl) depress the brain globally. Dementia tends to be patchier, affecting one area first, with interesting isolated defects that limn the geography of brain function.

Medication Is Dangerous

It's very important to understand that the elderly brain is more sensitive to the mistake-producing effects of all medications. This is especially a problem with medications that are not given for their psychological effect, but do enter the brain. We physicians tend to focus on the intended benefits of such drugs and may lose sight of the possibility of mental side effects.

It has been shown that many drugs that don't cause a person to feel drowsy or lethargic nevertheless increase error rates. This is why the FAA does not approve the use, in pilots, of any drug that affects the mind.

Antidepressants, drugs against anxiety, sleeping pills, and antihistamines are commonly understood to affect the mind and are seldom understood to increase error rates. They do.

Both physicians and laymen tend to lose track of *anticholinergic* drug effects. An Internet search for "drugs with anticholinergic effects" will quickly return, from several sources, lists of such drugs. These medications don't usually cause drowsiness, but may cause confusion or delirium and increase error rates. They are frankly risky in the aging brain.

What about Disease and Disability?

Let's end with a brief view of disease, to be clear about the difference between *impairment* and *disability*:

- Impairments are hindrances to excellence, and require *compensation*.
- Disabilities are the *inability* to do certain things. Disability is specific to tasks: Loss of your right foot is not a hindrance to many things, for example higher mathematics; but a *disability* for *en pointe* ballet dancing and an *impairment* for driving a car.

Disease is partly a matter of self-abuse in the West, and partly a matter of simple bad luck. Usually its impairments are temporary and treatable. Some diseases carry a risk of disability, such as lung disease, heart disease, or epilepsy.

The decision to fly with disease requires that we assess risk: in aviation, we have a special problem due to the fact we can't stop and park, so that sudden unexpected incapacitation of the solo pilot generally ends in death. This may involve passengers, or a child in a house below.

The risk is not necessarily "high" – but the risk is *real* – and *unpredictable*. The legal liability is based partly on

"had reason to know," so the people on the ground who suffer loss may very well have good reason to seek financial recourse. (For example, the neurosurgeon who suffered an avionics failure after entering cloud and crashed into a neighborhood – after taking an unacknowledged, impermissible, impairing migraine medication – left his wife in a bad financial spot.)

So: the supervisory question, "Should this pilot fly?" must be answered mainly based on prior behavior (to assess skill and judgment) and the known effects of the disease. The pilot who has shown poor judgment cannot be trusted until good judgment has been demonstrated in repeated opportunities to fail. This is important at all ages and all experience levels. It is very important that we discipline ourselves to close the gate carefully.

The pilot with disease impairment must be asked to demonstrate skill and judgment in adapting to the effects of the medical condition. The pilot should be able to clearly describe how the condition affects flight preparation and performance and how this will be compensated.

A harder question is, "Should this pilot *ever* fly?" This requires that we try to analyze the cause of the pilot's impairment and project, ideally with the help of people who have actual knowledge and experience ("experts"), to judge whether this ship can be turned. In professional flying, the use of expert consultation is important and affordable. In recreational flying, the expense of expert advice may make it unavailable.

Recommendation

- Know thyself;
- adapt to change;
- practice often;
- listen to others when they're brave enough to speak their worries.

References

(Thanks to Dr. Geff McCarthy)

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Fiction

I suppose everyone knows about this book, a deep and empathetic look at the development of early dementia, a worthwhile "technical" read as well as a fine novel.

Still Alice. Lisa Genova. Wheeler Publishing/Gallery Books, 2009.