
talents
competence
life change
perseverance
attention
skills
energy
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play
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dreams
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potential

In your 40s or 50s? Feeling a bit slow on the courts and around the office? Sorry, boomer. It's too soon to blame it on your aging brain.

Midlife Mind

BY JANET L. HOPSON, MA '75, AUTHOR OF MAGIC TREES OF THE MIND
PHOTO ILLUSTRATIONS BY NANCY O'CONNOR AND ROB HILL

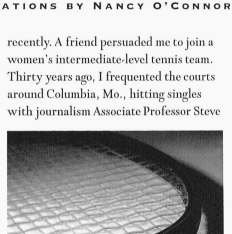
—"My first health class? Frankly, I didn't have a clue!"

—"When I tried to hit the ball, I swung the racket and completely missed it. I was pathetic!"

—"For all the time I've spent learning French, I should know more. I feel negative and frustrated."

—"There I was in math class with a bunch of what looked like 14-year-olds. Geniuses. Never took a note . . . I finally got up to the median, but it was a long, slow crawl."

Sound like college freshmen after their chilly plunge into higher education? Try middle-aged professionals: A pediatrician returning to graduate school after early retirement. A psychologist switching to racket sports following years as a champion race-walker. A food writer studying French before visiting her daughter in Paris. A Harvard educator relearning statistics for a research project. Success may have its rewards, but defying the tooth of time is not among them. Does the mind start fraying in midlife? Is learning genuinely harder? And if so, what are we graying baby boomers—still busy with careers and families—supposed to do about it? My own brush with midlife mind started me wondering these things recently. A friend persuaded me to join a women's intermediate-level tennis team. Thirty years ago, I frequented the courts around Columbia, Mo., hitting singles with journalism Associate Professor Steve

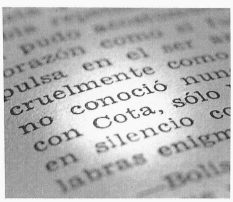


Better to "win ugly" than never to have played at all.

Weinberg. Although Steve admits to being "a little heavier and a little slower in the legs," he's still haunting those same campus courts and winning his share of games. I had long since drifted away from tennis, though, and this recommitment would mean sharpening skills I could scarcely claim in the first place.

Lessons ensued. I was seriously bad. I blamed my brain. Strange as it may sound, this was no idle accusation. Earlier in 1998, a book I wrote on brain development came out (*Magic Trees of the Mind: How to Nurture Your Child's Intelligence, Creativity and Healthy Emotions from Birth Through Adolescence,* Dutton). Co-author Marian Diamond of the University of California at Berkeley had earned scientific acclaim in the 1960s by discovering that rats raised in "enrichment cages" with regularly rotated toys and exercise equipment grow bigger brains. The brain's outer layer, the cerebral cortex, gets thicker with stimulation. In brain development, girth is great.

Later studies traced the cortical thickening to extra branching in the treelike brain cells called neurons. Provided novelty and challenge, these "magic trees" branch out, entwine and touch in thickets of neural tissue. Given sameness, repetition, or sensory deprivation, they recede and shrivel. The enrichment phenomenon crosses all developmental phases from puphood and adolescence to maturity and rodent old age. Enrichment is most potent, however, before puberty, because the young brain is a learning machine primed to acquire and then hard-wire



skills the individual will need to survive. Brain circuits regularly stimulated by life experiences during this period get cemented. Connections that lay idle through adolescence get pruned away.

For a rat, these sculptured circuits can spell out food sniffing, toy ladder climbing, or chewing through insulation. For a child, they can specify the component parts of walking, talking, bicycle riding, playing Nintendo, reading hieroglyphics … or mastering tennis. Childhood is a period of nearly effortless learning that feels like play yet sets up the cerebral pathways for a lifetime of talents and abilities. My tennis lessons at age 48 were overshooting that enchanted period by decades. Woeful accounts of frustrating French lessons and wrenching career changes only contributed to my suspicion that middle age, itself, could be clouding my already bedimmed postadolescent learning capacity. I consulted experts on aging—a quest for the truth about midlife mind.

Their best news was that physically, it is difficult to tell the brain scan of a 25 year-old from that of a 75-year-old. Areas that store memory—traditionally thought to tarnish first—change nearly imperceptibly. This may help explain why, in a long-term Harvard study of mental performance among 1,000 physicians and 600 other adults, the memory for names, faces, dates, and the location of one's car keys remained robust for most people.

The less terrific news was that several other mental activities do decline slowly and steadily, starting around age 30: Spatial aptitude (mental rotations, for example); reasoning (such as thinking through analogies); processing speed (the pace of problem-solving, for instance); the ability to split attention between two things at once (like driving and dialing a cell phone); and the so-called working memory that keeps a new phone number in your head as you search a document or finish a conversation. Behavioral researcher Douglas Powell of Harvard likens working memory to organic computer RAM, explaining that the ability to open and dip into different information "stacks" fades with age accompanied by the speed of your "organic computer chip." Gradually, he says, your brain runs at 166 megahertz instead of 300—still fast but not quite state-of-the-art. Tiny physical changes in the sea-horse-shaped hippocampus region may underlie the slips in working memory. And the mental and physical slowing of age may come from deteriorating "relay switches" called basal ganglia, which help transfer commands between nerves and muscles.

The redeeming news, at least for midlifers, is that the changes are quite small for decades. "The change from your adulthood to middle age is very modest," says Donald Kausler, a retired MU psychologist. Adds psychologist Michael Stones of Ontario's Lakehead University, "Around the 40-end of middle age," one's cognitive skills—including learning speed for a complex game like tennis—"would probably not slow down so much as you'd notice. Around the 65-end, though, people might see some slowing on the brain level."

At 48, neither cerebral changes nor frazzled brain-body relays can adequately explain my difficulties in learning tennis. "When people reach middle age, they often falsely attribute their not doing well in sports to age," says Stones, "when that's absolute bull (bleep)!" He thinks preference is a more likely reason. A weight-lifter friend of his gets "great joy out of throwing her husband and bench-pressing some obscene amount of weight. But she absolutely loathes endurance activity. Yet I like distance running and find that a weight room looks like a Spanish Inquisition torture chamber and feels even worse!" Kausler seconds this preference idea and adds emotion. Middle-aged learners tend to think, " 'I'm slipping. I just can't handle this.' But so much of it is noncognitive. It's more personality factors."

That could well be true for Harvey, the pediatrician who retired in his mid 50s, returned to graduate school in public health, and claimed not to "have a clue" about his first class. He recalls "dramatic emotional changes" after his shift from being "the boss calling the shots" to his new role as aging graduate student, feeling "really ignorant at times and embarrassed."

Emotional factors also may have figured into the food writer's frustration over learning French. Jane was a self-described "good French student" in junior and senior high school, though she seldom used her French. In 1997, after her daughter moved to Paris, Jane joined a conversational French class but worries about her ability. "I'm wondering whether, at this point in my life, it's difficult to learn a language. What I know now—all the vocabulary and verb conjugation—is what I knew in high school!"

Numerous studies have revealed that children's critical window for learning grammar and pronunciation closes by late adolescence. As long as native grammar is inscribed during early childhood, however, the window stays open for foreign grammar and remains ajar for vocabulary-building—both native and foreign—throughout life.

Despite Jane's frustrations over French

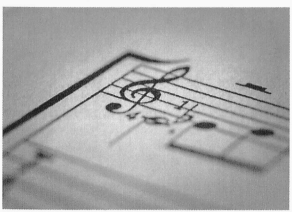
class, she concedes that she is a "perfectionist." She also acknowledges doing "much better" on her most recent trip to France and loving her French class experience, challenging as it may be. "I find it stimulating," she says, "so I'm certainly not going to stop now!" She notes, too, that she learns much faster on work-related tasks, such as conquering computer software and navigating the Internet.

The need for career-related retraining in middle-aged and older workers is fueling a big research effort in cognitive psychology, Kausler says. In studies at the University of Georgia, Wendy Rogers and colleagues have confirmed that older adults acquire and retain job-related skills and information such as operating new computer software virtually as well as younger adults, as long as they're given more time, more practice and special learning strategies. Harvard's Douglas Powell underscored this in his new book, *The Nine Myths of Aging* (Freeman, 1998), and in a recent phone conversation. "The important thing," he says, "is to compensate. If you're listening to complicated classroom material, get a tape recorder. Take very good notes. Pay very close attention. Try to visualize things."

Eight years ago, a friend named Walter made a spectacular career change by applying a more character-driven approach to midlife learning: perseverance. Walter moved to Berkeley, Calif., directly after high school in the late 1960s and wound up working as a car mechanic. Eventually, he opened his own Volvo repair shop, and 20 years slipped by. He started feeling some mental "atrophy," he says, and decided to apply to law school despite his lack of a college degree. He studied independently for the law school boards and did well enough to get accepted to a night school. "I wanted to exercise my brain again," he says, but once enrolled "It was hard at times to sit down to a significant reading assignment and keep myself awake!" Nevertheless, he stoically plowed through every page. "I ended up doing well," he looks back, "as much a function of the time I put in as anything else." Today, he runs his own successful law practice.

That same determination is the key to another common midlife diversion—taking up a musical instrument. So says David Jerome, a teacher of popular and classical guitar for many years in Alameda, Calif. After 40, Jerome explains, people complain more about their wrists and arms hurting as they learn to hold the guitar. Also, he adds, they're often embarrassed to be beginners. But adult students "have to stick with it for a while," he says, "be in a fog, deal with the physical aspects. If they come to lessons, play in-between, don't make excuses, and keep at it, they'll get it. There's nothing magical [or] superhuman about it."

Play the tune, but plan on paying the piper.



Recent research does suggest that music-learning may itself have critical periods parallel to language accent and grammar. Of musicians displaying perfect pitch, 95 percent started music lessons before age 7. And stringed instrument players who began lessons before age 13 have more cerebral cortex region devoted to the left-hand fingers than later learners and nonmusicians. Jerome concedes that your chances of getting to a professional level in music are better if you start in childhood. Still, many midlifers acquire enough competence to "express themselves" musically and "jam with a group." Beyond that, Jerome exalts the virtue of being a beginner in middle age for its own sake. It's important, he says, "to go out and be a complete amateur and have the teacher laugh in your face so you know how it feels. It connects you to life!"

Here, then, was my Holy Grail, my answer to the puzzle of midlife mind and my anxieties over tennis at 48. Going pro would never be an option. But quitting now seemed like a poor one, too, because tolerating that feeling of being seriously bad was an exercise of character. A man I met recently returned to pole vaulting in his 50s after a 35-year hiatus. It made him feel so young again that he promptly took up bull riding, too. With nothing more at stake than some whiffed overheads and some wounded dignity, this tennis team fantasy could be as safe a way as any to renew my connection to life.

An observation by one aging researcher haunted me and settled my decision. In their study of doctors and other adults, Douglas Powell and his Harvard colleagues found that even the modest cognitive declines of people's 30s and 40s seem to stall and hold steady throughout their 50s before trending down again in the early 60s. Powell can't explain this finding, and likens it to "the last rose of summer . . . to nature giving us one last really great decade." From the other side of 60, he assures me, "the 50-year-old decade is far better than the next." He tells about his cataract operations, his pulmonary embolism and his arthroscopic surgery. "And," he adds wistfully, "did I forget to mention my heel spurs?" I may not be ready to grab a bull by the horns, but I think I can manage what Thales advised in the sixth century BC. "Take time by the forelock." Maybe Thales was facing 50, too. ❋