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IN SIGHT for Oregon Lawyers and Judges

IMPROVING THE QUALITY OF YOUR PERSONAL AND PROFESSIONAL LIFE

PUTTING THE BRAKES ON AGE-RELATED COGNITIVE DECLINE

What is the most valuable asset of your law practice? Science would suggest that it is your brain. To practice law effectively and ethically, your brain must function at a highly effective level. Historically, neuroscience believed that the brain's capacity for positive growth and development (neuroplasticity) ended in childhood. Decades of research, however, have shown that the brain can and does change throughout life.

Despite this ability to grow and adapt, our brains go through changes as a normal part of aging. What changes the least are powers of recognition – “I know it when I see it.” What may actually get better, at least up to a point, are vocabulary, abstract reasoning (the ability to see concepts and relationships), emotional stability, and that elusive thing called “wisdom.”

Age-related cognitive decline is highly individual. Inevitably, however, some important cognitive functions do, to varying degrees, erode over time. General cognitive processing (especially of new or novel things) slows; retrieval of long-term information takes longer; learning new information is more challenging; and multitasking is significantly affected (although people don't do this as well as they think they do).

Potential Decline in Cognitive Functioning in Adulthood

Decline in both motor and mental speed of processing constitutes the greatest change in function associated with aging. Age-related decline in working memory places limits on other complex cognitive skills, including learning and recall of new information. As we age,

the physical size (volume) of our brain begins to shrink. Connections between neurons (synapses) begin to function less effectively; the projections that transmit impulses from one nerve cell to the next (axons and dendrites) atrophy and eventually die; and fewer neurotransmitters (chemical messengers) are produced.

In our twenties and thirties, cognitive functioning is arguably at its peak, although as early as our thirties, a small amount of brain volume has been lost.

Starting at about age forty, we lose on average 5 percent of our overall brain volume per decade, up until about age seventy, when any number of conditions can accelerate this process. In our forties, most individuals will notice the slowing of mental processing, and most will note that short-term memory tasks are more challenging.

In our fifties, changes in memory and other aspects of cognitive functioning become more noticeable. These changes may involve processing speed, multitasking, attention to detail, and the ability to place an event in time and location.

In our sixties, brain volume continues to shrink; the parts of the brain that are essential in the integration and formation of short-term memory are particularly affected. Other changes perhaps first noticed in the fifties may become more pronounced. Processing speed slows further; it takes longer to learn new information or master complex mental tasks; it becomes more difficult to maintain concentration and tune out distractions; “senior moments” become more common.

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In our seventies and beyond, people vary widely in their cognitive abilities. Many remain sharp until a very advanced age, while others begin to show the wear and tear of life and diseases.

Dementia

Dementia is the organic deterioration of the brain's mental processes, usually characterized by memory loss, the impaired ability to think abstractly and systematically, impaired judgment, and personality change. Research has shown at least seventy causes of dementia, including brain tumors, head injuries, nutrition deficiencies, infections, drug reactions, and thyroid-related disorders. A study conducted at the University of Maryland found that 10 percent of patients aged 60 and over who were diagnosed with Alzheimer's disease were actually suffering from brain damage or brain toxicity caused by alcoholic drinking. Some forms of dementia are reversible, but many are not. The most common types of dementia are Alzheimer's, vascular dementia, alcoholic dementia, and Lewy body dementia.

Age, family history, genetics, lifestyle, medical conditions, and accidents are the most common risk factors for all types of dementia. The greatest known risk factor for Alzheimer's is advancing age. The age at onset is typically after 65, and the likelihood of developing Alzheimer's doubles every five years after the age of 65. After age 85, the risk reaches nearly 50 percent.

No single lifestyle factor has been conclusively shown to reduce the risk of Alzheimer's. Evidence suggests, however, that the factors that put you at risk for heart disease (lack of exercise, smoking, high blood pressure, high cholesterol, and poorly controlled diabetes) may also increase the chance of Alzheimer's and vascular dementia.

Slowing the Pace of Cognitive Decline

Science has confirmed in the past 10 to 15 years that the same practices and strategies for reducing cardiovascular disease and diabetes – exercise and diet – also reduce the risk of cognitive decline.

In a ground-breaking study published in 2006, 59 sedentary individuals ages 60-79 were divided

into two groups that spent one hour in the gym three times a week for six months. One group walked on treadmills; the control group engaged in a stretching routine. Both groups had brain scans before and after the gym activity. The study determined that the walkers experienced a significant increase in brain volume in the areas of the brain most closely associated with higher-order cognitive and executive functioning. The group that engaged in stretching did not experience a corresponding increase in brain volume.

Previous research has shown that regular exercise leads to the growth of new capillaries (blood vessels) in the brain, an increase in the length and number of dendritic interconnections between the nerve cells, and an increase in the production of new nerve cells in the brain. These structural changes in the brain result in brains that are more adaptive to change.

A study of 18,766 female nurses found that those with the highest level of energy expenditure (exercise) had a 20 percent lower chance of being cognitively impaired on tests of memory and general intelligence.

A Finnish study of 1,500 people ages 65-79 found that those who had exercised at least twice a week were 50 percent less likely to have dementia.

To protect the most valuable asset of your law practice and put the brakes on cognitive decline, commit to getting your body moving in an enjoyable way for at least 30 minutes, three to four days a week.

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