Being a Good Steward in the War on Aging and Health

(Exerts and comments on *Spark*, the work of Dr. John Ratey)

by Dr. Harley Ihm

In 2001, I experienced a sudden neurological problem that had no evident cause. I pursued diagnosis from one doctor to another until I ended my journey at Mayo Clinic. There I was diagnosed with a condition of the sensory nervous system of unknown origin. At that point, I was depressed, but I knew that all I could do was live life to the fullest however long it lasted.

In 2010, I completed my Doctorate in Biblical Studies in Preaching. My dissertation was on "Branding the Sermon." I wanted to know why the brain cannot remember some information and cannot forget other information. What was the problem and how could it help in preaching? During my research into corporate branding and various books on narrative preaching and communication, I came across a quote in a leadership book on how we learn. The author quoted Dr. John Ratey's research from, "The User's Guide to the Brain," explaining how the story, narrative lights up the neurons for understanding and retention. Suddenly, it was clear to me why I could remember a sermon from a preacher given over twenty years ago. I could remember his name, although it was the only time I ever saw or heard of him, and I could see the vivid imagery he used that branded my mind forever. Realizing that I have problems remembering where I leave my car keys, I knew something significant had taken place. The discoveries revealed in Dr. Ratey's book suddenly helped me understand and became a thread within my dissertation.

I ordered Dr. Ratey's book so I could better understand what was quoted by another author. There was a newer book titled, "Spark: The Revolutionary New Science of Exercise and the Brain," that could be purchased along with the book I was ordering. I had no idea that this second book would be part of a new journey that would bring excitement to my life and my battle to stay healthy and sharp. I was about half way through this new book on fighting the effects of aging and certain neurological illnesses when my yearly appointment came up with my neurologist. He ordered a new MRI and it showed the first signs of a progression of the disease. New lesions appeared in the brain scan. We have no idea what that means for the future. This type of illness can move slowly or accelerate at any time.

The information in this book gave me a new excitement and a plan of attack. God has made us all stewards of all that we have including our bodies. I have seen people grow tired and full of pain and believe they will just slow down and take it easy for a little while. It seems that most of the time their deterioration then begins to rapidly progress. Dr. Ratey's research and writing inspired me to be the aggressor not the victim. I have developed a plan based on his research that gives me an excitement about the future. I want to share these ideas with everyone who wants to live life to the fullest as long as we draw breath. I choose to be a good steward of this life in the war on aging and health. Would you join me?

The idea is stated that if you are not busy living, your body will be busy dying. We were created to have plans, goals, and appointments, to be busy living our lives (p. 237). We were not created to sit on a couch and watch other people live their lives while we ate potato chips and felt sorry for ourselves. I've been in Europe and the streets are filled with people riding their bicycles to the store, people who would be homebound or bedridden if they lived in America. It's not uncommon to see people in their 90's riding to the store or boarding the train to go to town and walk from the train to the market. Could it be that we have become over-medicated and under-exercised in our comfortable society? Is our blessing also our curse? I believe it is time Americans join together to wage a war on aging and illness. However, this plan is not a temporary attack. You ***MUST*** create a new habit with a desire to make this a natural part of your life just as you do eating and sleeping. Let's begin by exploring some evidence that this is more than a passing idea or fad.

Evidence to Consider:

The average seventy-five year old in America suffers from three chronic medical conditions and takes five prescription medicines, according to the Center for Disease Control (CDC). Among those over sixty-five, most suffer from hypertension; more than two-thirds are overweight; and nearly 20% have diabetes (which triples the chance of developing heart disease). Diabetes also gives you a 65% chance of developing dementia. High cholesterol gives you a 43% greater risk of developing dementia. The leading killers are heart disease, cancer, and stroke; together they account for 61% of all deaths in this age group. Smoking, inactivity, and eating poorly are root causes of these bodily diseases. Likewise, the latest research is clear about how lifestyle influences the mental hazards that come with aging. The same things that kill the body kill the brain (pp. 219-220).

Stress and inactivity play big roles in the development of arthritis, chronic fatigue syndrome, fibromyalgia, and other autoimmune disorders. Exercise can help boost our immune response to fight off the stress and depression. Why is that important? Research suggests that activity is clearly a factor in some forms of cancer. 23 of 35 studies show an increase risk of breast cancer for women who are inactive; physically active people have a 50% less chance of developing colon cancer; and active men over 65 have a 70% lower chance of developing the advanced, typically fatal form of prostate cancer (p. 84).

1. Vern Ratey, Dr. Ratey's mother, was known as a fast walker. She would stride a mile and a half to church for the early mass every morning except Sunday, when his father drove the family to church (p. 217). That's three miles each morning, six days a week. She was sharp well into her eighties. She was busy planting tomatoes, shoveling snow and volunteering. Later she would swim, dance, play bridge and keep walking to church. When she was eighty-six, she tripped and broke her hip. A year later she fell and broke the other hip. These accidents stopped her life of exercise and at eighty-eight she died of natural causes. 1.8 million seniors fall and break a hip each year. About 20 percent of older adults who break

their hip die within a year. I wonder how long Dr. Ratey's mother might have lived had she not suffered the accidents that brought her lifestyle to a halt.

2. Sister Bernadette was a nun who died of a heart attack at the age of 85 in the mid-1990's. Along with 600 other nuns she donated her brain to science. The story of the School Sisters of Notre Dame in Mankato, Minnesota, is told in epidemiologist David Snowdon's book, *Aging with Grace.* These nuns constantly challenged their minds using vocabulary quizzes, mental puzzles, and debates about public issues. Many of the nuns lived to be 100 or more. The interesting thing about Sister Bernadette is that she scored in the 90th percentile on cognitive tests up until she died. However, when her brain was examined postmortem, it showed massive damage from Alzheimer's disease. Her brain tissue was riddled with plaque and excessive neurofibrillary tangles. Her genes also showed she should have been utterly lost to the ravages of dementia. Instead, she was still sharp until her heart attack. Her brain had been trained to work around the genetic issues within her and rewire itself (p. 243).

3. A girl named Grace had a medical degree and yet had bouts with depression. She couldn't find a medication without side effects. She injured her back and was immobilized in bed for a while. To rehab she started swimming. It was the only thing she could do, and it felt good because the water supported her body and eased her pain. Soon she was exercising 3 hours a day in the pool. Her pain decreased and she started seeing muscle tone return. When the pool shut down for the winter, her back flared up and her depression returned. She could have given up, but she began lifting 3 lb. dumbbells while lying flat on her back. She would lift fast enough to get her heart rate up several times a day. This sparked a shift in her brain and her mind. The exercise for the rehabilitation created a mental focus and a release of depression. Had she not pushed herself with exercise, she would have likely ended up in a serious depression and failing health (pp. 126-127).

Various Areas of Success:

Plan of Attack: *Push Yourself in all areas!*

1. **Diet** – Eat foods that activate cellular repair mechanisms, cumin, garlic, onions, broccoli, blueberries, pomegranates, spinach, beets, and green tea. Add to those whole grains, proteins, dietary fats and omega-3's found in fish. One study showed that those who eat fish once a week slow their cognitive decline by 10%. Another study followed 900 people for 9 years. Those who ate 3 meals with fish oil per week were half as likely to develop dementia (p. 239).

2. **Physical Conditioning**
    a. **Know your maximum heart rate.** Subtract your age from 220.
    b. **Aerobic exercise.** 60-65% of your maximum heart rate for 30 minutes to 1 hour. This is the level where you burn body fat and generate brain nourishment.

c. **Strength.** Use weight light enough that you can lift them 15 times, then rest. That is one set. Do 3 sets. Lifting weights adds bone density. People who are not active lose bone density and are more susceptible to fractures if they fall.
d. **Dancing.** Turn on the TV to a music station or turn on the radio and just dance. It's great for flexibility and for your heart.
e. **Tennis.** Activities that involve bouncing like tennis, dancing, jumping rope and aerobics strengthen your bones.
f. **Walking.** You don't have to walk fast. Just take long walks and keep adding to the distance you can travel.

3. **Balance.** Focus on some form of balance exercise for 30 minutes twice a week.
   a. **Pilates**
   b. **Tai Chi**
   c. **Martial Arts**
   d. **Balance Boards**

4. **Mental** (Remember the Sisters of Notre Dame)
   a. **Puzzles**
   b. **Music Lessons** (especially piano)
   c. **Language** (free website language at www.livemocha.com.)

5. **The Effects of Exercise on Your Body: The Life List** (pp. 233-237)**)**

   a. **It strengthens the cardiovascular system.** A strong heart and lungs reduces resting blood pressure creating less strain on vessels in the body and the brain.
   b. **It regulates fuel.** Researchers at the Karolinska Institute in Stockholm conducted a 9 year study of 1,173 people over age seventy-five. None of them had diabetes, but those with high glucose levels were 77% more likely to develop Alzheimer's.
   c. **It reduces obesity.** The CDC estimates that 75% of Americans over age sixty-five are overweight. That doubles the chance of developing dementia, not to mention other illnesses.
   d. **It elevates your stress threshold.** Too much stress over a period of time elevates the cortisol which can bring on dementia and depression. Exercise increases our ability to handle stress and keep this hormone from damaging our system.
   e. **It lifts your mood.** Studies have shown that keeping our mood positive can improve our chances of not getting dementia. Don't whine! Enjoy life and be healthy!
   f. **It boosts the immune system.** Exercise rallies the immune system. Those physically active are shown to have a 50% lower chance of developing colon cancer. A boosted immune system helps stop inflammation that can cause disease.

g. **It fortifies your bones.** Women's peak bone mass is reached by age thirty. After that they lose about 1% per year until menopause, when the pace doubles. By age sixty, about 30% of a woman's bone mass has disappeared. It has been proven that women in their nineties can improve their strength and bone mass by weight training.
h. **It boosts your motivation.** Exercise counteracts the natural decline of dopamine in the body that creates motivation. It's what gets us up off the couch and wanting to exercise and be active in life. Sports like golf and tennis are great for increasing dopamine.
i. **It fosters neuroplasticity.** This is the ability of nerve cells to change and modify their activity in response to changes in the environment, and even overcome injury or disease.

Important Terms:

Aerobic metabolism. This is low to moderate exercise that uses fat and then fat and stored glucose to provide fuel to power the muscles. This is exercise you can do for longer periods of time. This exercise burns more fat.

Anaerobic metabolism. This is when you push your limits and the oxygen demand is greater than you can sustain. Your muscles ache and break down and then have to recover. This exercise improves muscle tone and blood circulation.

Blood-brain barrier (BDNF). A protein produced inside nerve cells when they are active. It serves as Miracle-Gro for the brain, fertilizing cells to keep them functioning and growing and creating new neurons.

Cortisol. A stress hormone that keeps our attention and memory sharp.

Endorphins. Hormones released in the body and the brain that serve as natural morphine. They are produced when we push through pain like runners who suddenly get a second wind and just keep going. Some call it hitting the runner's wall. A physiatrist from England stated that she would be out of business if her patience would just jog for 30 minutes every single day to obtain the body's own natural medicine.

Dopamine. A neurotransmitter that is vital to movement, attention, comprehension, motivation, pleasure, and addiction.

Epinephine. Otherwise known as adrenaline, it is released when we face sudden stress to prepare us, like the fight or flight response.

Maximum Heart Rate. Subtract your age from 220. If you are 60, then it is 220-60 which = 160. If I want to work out at 75% of my maximum heart rate to help my cardiovascular system I will keep my heart rate at 120 beats per minute. If I want to work out at 60% of my maximum heart rate to burn more fat and work out longer, I will keep my heart rate at 96 beats per minute.

Neurogenesis. The process of stem cells dividing and developing into functional new brain cells, or neurons, in the brain. This was once thought to be an impossible process.

Norephinephrine. A neurotransmitter that affects arousal, alertness, attention and mood.

Serotonin. A neurotransmitter vital to mood, anxiousness, impulsiveness, learning and self-esteem.

*All the scientific and medical information in this paper is taken from John J. Ratey's book, *Spark.* I highly recommend you purchase a copy and visit the following links to further your health.

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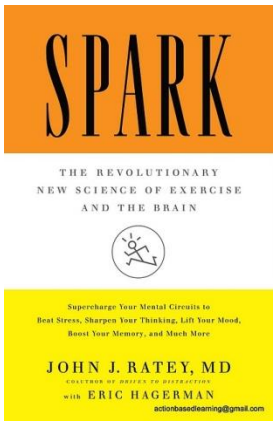
Book:

John J. Ratey, M.D. *Spark: The Revolutionary New Science of Exercise and the Brain.* (Little, Brown and Company, 2008).



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