



## Preserving Cognition:

Whether you boast the memory and cognitive powers of your 20 year-old self or whether you are still trying to remember the name of the old neighbor who stopped you in the bakery aisle, preserving cognitive function is in everyone's best interest. Much research has been done on examining what measures provide benefit to our aging brain. Some aspects have been long recognized, others were known by our great-grandparents, but fell out of fashion in our more automated lifestyles. Their prioritization on the list is probably the most fluctuating factor. Here is what we currently promote:

1. **Recognize and minimize your modifiable vascular risks factors. These include your blood pressure, cholesterol, blood glucose, and tobacco use.**

### **Blood Pressure**

-Over time medical experts have debated the optimal blood pressure control.

Many years ago, doctors allowed your Systolic Blood Pressure (that is the first number in your blood pressure reading) to run 100 + your age. Of course we have learned a lot since then. Current recommendations for brain health are a **top number of 120** for the Systolic Blood Pressure and a **top number of 80** for the Diastolic Blood Pressure (the second number in your blood pressure reading). Of course, there is always the exception. Some people have had their blood pressure sneak up on them over many years – running 140's in their 40's and 160's in the 50's-60's. For these individuals, sometimes the cerebral auto regulation (the way the brain protects itself from blood pressure variation) does not handle a new blood pressure of 120 well and a different parameter must be used.

We also have learned that frequent hypotensive events are harmful to maintaining cognition. That means that if you normally run a blood pressure of 120, that dropping your blood pressure to 80-90 on a hot summer day when you have not stopped to drink enough fluids is also detrimental.

Careful management of blood pressure will protect your brain (of course the most important part of what makes you you), your heart, as well as your kidneys.

### **Cholesterol**

-Your cholesterol is measured in a Lipid panel.

The Lipid panel is tested in a fasting blood sample. It measures the total cholesterol, the HDL (high-density lipoprotein) or “good cholesterol”, the LDL (low-density lipoprotein) or “bad cholesterol”, and the triglycerides – the fats carried in the blood stream. Simply stated, HDL is protective. It decreases your risk of vascular disease (heart disease, stroke, and peripheral arterial disease). It acts as a scavenger and helps remove LDL from the artery. LDL, or the bad cholesterol, contributes to vascular disease by building up plaque in the blood vessel wall and causing “hardening of the arteries” or atherosclerosis. The higher the LDL level, the higher the risks of vascular disease. Triglycerides also contribute to increased risks of vascular disease.

Your cholesterol may be managed by diet, exercise, and medication. The choices in medication have increased in recent years. The most widely prescribed medications include the “statins”. You may have heard of these medications on the local television break with a law firm offering to represent you in your claim against the manufacturer for a number of ailments. They are still the most widely prescribed medications to manage high cholesterol. Medication management is a weighing of risks vs. benefits – just like your choice drive to the grocery store. You may be in an accident, but the benefit of having food in your home usually outweighs the risks of the associated trip.

More recently, the FDA has approved other medication options. These are mostly limited by insurers, to patients who do not tolerate or respond to statin therapy, but as we learn more about the benefits of these medications with their wider use, this may change.

### **Blood Glucose**

-Blood glucose is a complicated story.

The brain has a special relationship with glucose. While it is protected from many things that circulate within the blood stream by a special defense called the blood-brain-barrier, glucose has free entry to the brain. The brain’s only source of energy is glucose. Therefore, it allows glucose to enter freely. Chronically high blood glucose found in diabetes causes accelerated atherosclerosis. High blood glucose – either chronically or acutely – may cause additional injury to the brain. Low blood glucose deprives the brain of its energy source and will also cause injury to the brain.

### **Tobacco**

-Smoking tobacco is the final element to the easily treatable risk factors of accelerated hardening of the arteries. Luckily, this is avoidable – protect your brain - Don’t Smoke.

## **2. Physical Activity**

-The benefits of exercise in preserving cognition are multiple and complex.

Physical activity protects vascular health and thereby brain health. Physical exercise also correlates with faster processing speed and preserved executive function. In addition, physical activity provides other benefits to protect cognition that are less noted. Regular exercise improves balance. This improved balance also reduces risks of falls and the myriad of complications associated with falls in the older individual. Physical exercise improves independence and reduces the risks of social isolation.

## **3. Diet**

-A diet high in good fats, healthy fiber-rich carbohydrates -vegetables and fruit, containing lean proteins, and little saturated fats and sugars is associated with preserved cognition. This is largely associated with the diminished vascular risk factors and perhaps anti – inflammatory effects, but is also associated with improved nutrition. Most recommended is a modified Mediterranean Diet – plentiful in olive oil healthy legumes, fruits, with whole grain carbohydrates, and including lean protein – preferable fish and occasionally chicken. It uses olive oil as a healthy fat and avoids vegetable oils and butter. It incorporates gut –friendly foods such as artichoke, asparagus, onions, and yogurt. Sadly, it does not include doughnuts, soda, and ice cream.

## **4. Sleep Well**

-Researchers at the Johns Hopkins Bloomberg School of Public Health found an association between poor sleep and increased brain levels of B-amyloid protein (a toxic protein found in plaques in the brain associated with Alzheimer's disease). It is unclear which comes first, but it may form a vicious cycle. The accumulation of B-amyloid protein may disrupt sleep and poor sleep may accelerate further accumulation of B-amyloid protein. This is thought to occur because of impaired clearance of toxins during the deeper stages of sleep. Other findings have demonstrated impaired cognition associated with sleep apnea – presumed to be related to the impaired oxygen delivery to the brain as well as the disruption of the sleep cycle caused by the associated recurrent awakenings during the night.

## **5. Cognitive Exercise**

-Keep the brain learning. Making your brain maintain function by doing your usual crossword puzzle is great, but even better – stretch your brain by learning something new. Maybe it's a second language or the instrument you always wanted to play – do it. By making the brain learn a new task, you are making new connections within the brain. The loss of

connections between nerve cells is correlated with dementia. Keep building new ones – you have nothing to lose and new skills to gain.

## **6. Manage Stress**

-More recent studies have demonstrated a relationship between stress, increased inflammation, accumulation of toxins, and poor cognitive performance. Managing and perceiving stress is very individual. Physical activity, social support groups (your golf friends, bowling group, knitting circle, prayer groups), as well as more formal techniques such as meditation may help manage stress.