



Proven to slow down the aging process

By Dr. Delia Roberts

If you type the title of this article into Google or any other Internet search engine you'll get about 500 million hits. Anti-aging is big business with an annual global market of over 50 Billion US dollars. No one is immune to concerns about the aging process, whether you worry about your health, your physical and mental performance or your appearance. The slowing down that is often seen in older workers is especially of concern in an industry like forestry, where aging bodies face significant safety risks on a daily basis.

Effects of aging

Let's look first at the major physical and mental effects of aging. There are a few main changes that are responsible for many of the effects that we see.

1. Collagen is a protein with a fibrous structure that is a critical component of many tissues. Its support and elasticity allow organs like the lungs, blood vessels, the heart and the bladder to expand and fill as needed, and then to return to their original shape. Collagen fibers also let the lenses of your eyes change shape to focus, support your skin and provide strength to connective tissues that make up bones, cartilage, tendons and ligaments. Unfortunately, the cells that make collagen are not very active in adults, so there is little opportunity to renew any damaged or worn out collagen. As we age, collagen fibers become stiffer and less resilient with the effect that we don't see as well, our joints are at higher risk of injury, and the flow of blood to every tissue and organ is lower. The reduction in blood flow has a big impact because it means that the essential supply of oxygen and nutrients necessary for health and function of every cell in the body is not as good. Cells can also be damaged because without adequate blood flow, toxic wastes accumulate.
2. To a large extent, growth and renewal of all cells are controlled by the anabolic

hormones testosterone, growth hormone and estrogen. The baseline levels of these hormones fall off with aging and so there tends to be a lower level of renewal for pretty much all cells in the body. In some cases we don't notice that we have fewer healthy cells in a tissue or organ, for example a healthy liver has so much extra capacity that it can still perform well. But in other organs the changes are more apparent, like the loss of muscle mass with aging, or the ability of the kidney to filter wastes and maintain water balance. Another way this change affects older people is that they cannot respond to stress as well. Changes in temperature, emotional stress, loss of sleep or altered diet are all harder to cope with because the various organs have fewer healthy cells and so don't work quite as well.

3. Inflammation and DNA. These are separate systems but are related to every process that keeps us alive and functioning. All of the instructions for every protein in our body are coded for in the DNA. With aging, chemical and UV light exposure this template – or the systems by which we access and use

the template – can be damaged. What that means is that we no longer have an accurate, efficient and effective way to keep our cells and organs running smoothly. Inflammation comes into this because it is the process by which our immune system tags something dangerous and begins to deal with it. Inflammation can cause further damage to tissues (including blood vessels where it causes atherosclerosis or hardening of the arteries, which reduces blood supply further), but it can also alert the immune system to identify and remove cells with damaged DNA.

Exercise is the premier anti-aging treatment

Now that we know about some of the main changes that occur in the body with aging, we can look for ways to reduce the rate at which they occur. Unfortunately, among the multitude of anti-aging treatments few have been proven to be effective. Of those that are, the three most powerful are regular physical activity, the supply of essential nutrients through the diet and effective rest. There are thousands of studies that

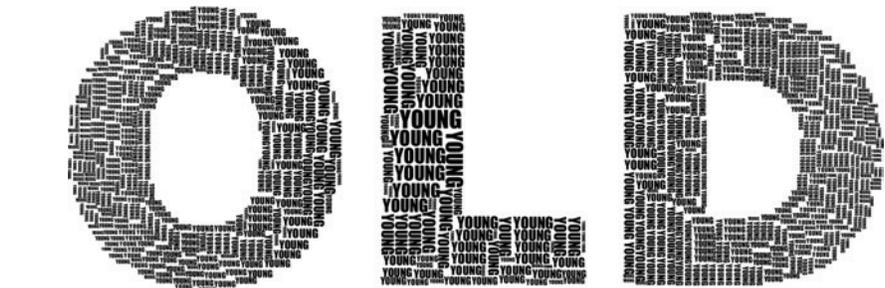


show that older people who exercise can slow the loss of function and even restore levels back to those seen decades earlier. Likewise, a healthy diet with an emphasis on unprocessed fiber-rich foods like a variety of fruits and vegetables, whole grains and legumes, adequate protein intake and unsaturated fats can protect against many diseases and improve energy. And last but not least, making sure to get enough quality sleep is also important for good mental and physical health.

One of the key effects of regular exercise that impacts aging takes place in the mitochondria, or cellular energy factories. The mitochondria in older people who exercise release fewer inflammatory signals, their DNA has fewer errors, they withstand stress better and the proteins are better able to breakdown carbohydrates and fats to produce energy that cells use to drive all of their needed activities. Blood flow is more efficient in older people who exercise, although it takes longer for the body to increase flow to tissues that are working. That means that its more important to warm up before physical activity the older that you are! In addition to changes in the blood vessels, the heart muscle and circulation of older people who exercise regularly look like the tissues of much younger people. As we age the nervous stimulation of the heart and other organs shifts over towards the fight or flight response, raising blood pressure and creating other changes that increase the level of stress on these tissues. Exercise restores this change back to a balanced level and improves the nervous system in other ways including increasing the number of healthy connections between brain cells so that memory, learning and complex thought are improved. If this isn't enough to convince you that exercise is essential for older people, keep in mind that exercise also increases the secretion of testosterone and growth hormone, which help to keep all the tissues of the body healthy and strong, nutrients are processed better, tissues regenerate faster, and sex drive is maintained.

Diet as an anti-aging strategy

The supply of nutrients is always important, the diet is the way that we can ensure that



our bodies have all of the building materials necessary for growth and repair. Fruits and vegetables that are minimally processed are rich in the minerals, vitamins and antioxidants necessary to guide this process. Older people may have less efficient digestive systems as well as a lower need for calories, so it becomes even more important to choose nutrient rich foods. The smooth muscle of the intestines functions a little less well, so including plenty of fiber rich foods helps move food through the intestines and ensures a healthy colon. Omega-3 polyunsaturated fats are powerful anti-inflammatory agents, especially those found in cold-water fish. Since inflammation is well known to contribute to many diseases and increases in older people, eating salmon or other fresh unprocessed sources of omega -3's is a great strategy for health. The research on the dietary needs of older people also suggests that the requirement for protein is slightly increased. Including protein rich foods in each meal will help maintain energy levels throughout your day. Consider large flake oatmeal, topped with milk and chopped fruit for breakfast, a few walnuts and almonds with a piece of fruit for snacks and lentils or beans with a grain together with a salad for dinner as healthful alternatives to a meat or cheese rich diet.

The need for recovery

There is no question that restoration takes longer as we age. Getting enough quality sleep is a challenge for forestry workers at the best of times. But it becomes even more important in older workers. Making sure to schedule your sleep hours will help prevent everything else in life from

taking precedence over adequate rest. Techniques for slowing your mind down include bedtime rituals and meditation can make it easier to fall asleep and stay asleep for a restful night, however short it is. And somewhat counter intuitively, exercise will also improve sleep quality and effective rest.

Things that speed up aging

While there is still some controversy around many dietary recommendations and much that is still not well understood about sleep and exercise, there are some things that we know for sure increase the effects of aging. Smoking makes collagen stiffer and less effective, rates of tendon injuries are higher in smokers as is the overall level of inflammation in the body. We also know that the consumption of sugar, alcohol, and certain preservatives found in processed foods contribute to inflammation, metabolic diseases and cancer.

Lifestyle

It can be very difficult to make some of the changes that can impact the rate at which you age. However, when you consider the impact of diseases like diabetes, cancer and dementia on your quality of life and the lives of your loved ones, it's worth making even small changes towards longevity. Choose just one area and set a series of goals beginning with realistic changes. As you begin to feel better and see the effects it will become easier to adopt other improvements in your youthful behaviors. 🌱