



## ❖ VARIA

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### ANTI-AGING

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##### Abstract

In this research, a literature study was conducted on what possible positive effects of; the most talked about subject today, the anti-aging applications have on people.

Aging is changes that the years bring on to the body. People have been trying for centuries to prolong life and searched for an elixir to do so. Today, scientists aim to increase human life to over 100 years of age with anti-aging applications. The purpose of this study is to try to find an answer to the question why doesn't everyone age equally.

*Key words:* anti-aging, people.

##### Introduction

For a long time, people have searched for an elixir to prolong life (Yu et al. 1998). It is said that Alexander the Great went to India to search for the mythical river of immortality. Over time, this search continued to become a dream for the people (Yilmazturk, M.).

Immortality, not aging and eternal youth have always been the biggest dreams of people. Maybe you know someone who looks 40 even though he/she is 60 years old. Some people look younger than their age. Physically and mentally, they are as active and strong as much younger people because these people have succeeded in slowing down the aging process.

##### Aging

Aging is changes that the years bring on to the body. Aging is a life process that begins with birth and ends with death but the actual wear and tear on tissues and organs start during puberty when growing and development completes (Yu, 1999).

For example, fibroblasts cell which is mainly produced in human body may survive up to 150 years under the convenient laboratory conditions. It will be also possible to live such a long time for people if these suitable circumstances are prepared (Yu, 1999).

Nowadays, scientists who are engaged on "anti aging" subject, are dealing with the question of increasing people's life on top of the hundreds years of age. Undoubtedly, it is aimed these people be healthier and active. In the 1960s, while the average age limit was 49 in Turkey. In the 2000s, this age limit rose to 69 years. On the base on these statistics, it will be possible to say people's life gone up by 20 years last 40 years.

##### Why doesn't everyone age equally?

Because not everyone carries the same genetic heritage. Moreover, everyone nourishes and lives differently. It is known that even identical twins from the same egg age at different rates from each other when they live under different geographical conditions. There are three types of ages in humans:

1. Chronological age
2. Biological age
3. Psychological age

We can divide the elderly into three periods in chronological order:

- Age 65–74 Younger elder
- Age 75–84 Middle age
- 85 and above Advanced age (Yu, 1999)

##### *Changes in human body organs and systems in the elderly people are explained as below;*

*Some certain changes are happened in aging body, these are;*

**Cardiovascular System:** The heart begins to beat, blood pressure rises, rhythm disturbances occurs and around the heart oil production begins. Moreover, oils and calcium are accumulated in artery vascular, it increases hardness of vascular and also causes to rise diastolic pressure.

**Respiratory System:** Lungs capacity decreases, the process of combining with oxygen and the blood is reduced. Increase the risk of breathing difficulties and bronchitis.

**Sexual And Excretory System:** Reduction, drying and shrinking in the sexual region, sexual functions becomes weaker. Reduced blood flow to the kidneys. Increases the risk of prostate diseases in men.

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**Digestive System:** Loses in teeth, chewing function slows down, digestive functions slow down. Nutrients absorption gets worse.

**Sense Organs:** Ability to taste is disrupted and vision and hearing acuity is reduced. Tears get dry and the eye color pales.

**Skeletal and Connective Tissue:** Body bone mass decreases. The bones course towards osteoporosis starts. Muscle mass and strength decrease. The height of the cartilages between the vertebrae decrease due to the reduction of the amount of water within the disks and the spine gets bent gradually. The height gets shortened over time.

**Nervous System:** More than 30,000 neurons (nerve cells in the brain) die every day, thus the number of brain cells gradually decrease and the weight of the brain decrease as well. As a result of this, weakening of memory occurs along with elongation of time to react against effects. Forgetfulness and environmental relationships being to decrease over time. Risk of developing Alzheimer's disease double every five years after the age of 65.

**Skin Texture and Hair:** Skin becomes dry, its flexibility and sweating capacity decrease and beings to wrinkle over time. Hair starts to turn gray and thin out.

**Other:** Breasts gets smaller and sags because the tissues have aged and have lost their sensitivity over time. Insomnia starts. Communication with people around is disrupted and the person becomes withdrawn/introverted and becomes more and more quarrelsome with the people around (Palozza, 1998). Protective measures that needs to be taken with the elderly:

- Quit smoking and alcohol and increase physical activity (exercise)

### Free Radicals

Free radicals can be considered as molecules with impaired electron balance. In order to find balance again, they attack other molecules and either receives or gives electrons. Thus, the attacked molecules become free radicals and with the chain reaction, hundreds of molecules in the body undergo change every second.

If the attacker molecules are seeking to complete the deficiency, they attack the proteins, fatty acids and even genetic agent DNA and damage them. Every cell in our body takes a stand against approximately one-hundred thousand attacks per day. Most of the damage occurred in the cells is repairable, however, some are impossible. Therefore the process of aging accelerates in all the tissues and prepares the base for the formation of many diseases (cancer, cardiovascular diseases, Alzheimer's Parkinson's, rheumatoid arthritis, diabetes).

Factors that increase the formation of free radicals; ultraviolet rays, excessive food consumption, surgeries, radiation, drugs, cigarettes, inflammations, intensive sports, lack of antioxidants, dietary/environmental chemicals and stress. (Yılmaztürk 2005).

### ANTI-AGING

The anti-aging means "against aging". As a medical term, we can characterize anti-aging as taking active measures or preventive medicine. The anti-aging is applied for the purposes of slowing down the aging process as much as possible and to enable the whole body to age proportionally and in a healthy way. Renewing the skin cells and connective tissues, balancing the hormonal imbalances in men and women separately, increasing sexual stamina and health, early diagnosis of diseases that may occur as a result of aging and taking precautions are the main objectives of anti-aging applications (Kavas, 2003; Civan et al. 2010).

During the anti-aging application, diseases that people may catch later in life, and hormones and the substances in the body are all identified and balanced. The diagnosis of anti-aging is particular per person. It first starts with a detailed consultation service and laboratory tests and then offers variety of possibilities for the measurement of aging-specific parameters (Rabe and Strowitzki, 2001).

There are many causes of aging but the most important three factors can be controlled to a large extent: Free radicals, reduction of hormones and unhealthy living. You can maintain your youth by declaring war against these factors.

### Benefits of Anti-Aging Applications

**Benefits of anti-aging application can be summarized as below:**

- Increases the grip function, memory and concentration.
- Help overcome the aggression in old age, sleep impairment.
- Regulate the metabolism and increases the level of energy.
- Make person feel energetic and fit.
- Reduces the amount of fat in the body by 14.8%.
- Increasing muscle mass at rate of 8% and increases physical strength and condition.
- Help increase sexual power again.
- Raises the exercise capacity and physical activity. Improve the shape of the body.
- Raises the status of mood and increases capable of solving problems coping with complete favor swings, provide high morale.
- Regulates blood flow in the body. Lowers the level of cholesterol. Reduces LDL (bad) cholesterol, increases HDL (good) cholesterol.



- Normalize lipid levels and increases mineral density in bones.
- Strengthening the immune system that may occur in old age and protect human body for illnesses.
  - After injury or surgical interventions, reduces the risk of infection and boiling and textures rejoin more quickly.
  - Corrects the skin that thin, wrinkled and dry in old age. The skin becomes thicker, elastic and stretched. With other expression is became "Young Looking" (Klentze 2001).

### Essential Elements of the Anti-Aging Treatments Antioxidant Interventions

The cellular mechanism of the oxidative damage caused by the free radicals have been documented with numerous experimental evidence. In addition to this, with free radical research, it was found that, biologically, many reactive oxygen species (ROS) and reactive nitrogen species act as important cellular regulators/stabilizers within the cellular metabolisms that are based on normal redox. Dual function effects of the ROS and RNS and their stabilizing roles on the redox balance are much more than expected. Most of the studies are of the same opinion with the concept that the age-related oxidative damage of the cellular DNA during aging may lead to redox imbalance which results in disruption of the cellular stabilization process of the proteins and the lipids. Therefore, it makes sense to wait for the possibility that reducing the antioxidants along with the cellular components that were damaged oxidatively may repair the age-related damage and the synergistical interaction of the life-shortening pathogenesis (Yu 1996, Sack et al 1996). Due to its protective feature, feeding the various antioxidants was one of the first initiative options that was used. According to the theory of oxidative stress associated with aging (Yu, 1996), usage environment of the antioxidants is based on reducing the oxidative wounds and slowing down the aging process. Unfortunately, there was no definitive conclusion about the effectiveness of the anti-biological aging movement because there was no report about biological and pathological changes in many studies and that death was used as the end-point (Kitani et al 1993, Civan and Cakmakci 2010).

### Hormonal Interventions

Modern approaches towards the anti-aging interventions have tied aging to the diminishing hormone levels and based on this belief, they have conducted experiments in order to re-supply the missing hormones. Called the "brown-sequard elixir" which are extracts prepared with sheep testicles, the Brown-sequard experiments with self-injections claim these types of imaginations (Walford, 1983).

Hormonal Intervention was one of the most commonly used treatments in 1990s in order to weaken

many conditions related to age. Using the growth hormone as an anti-aging measure, in order to prevent the loss of lean body mass and immune functions that occur with age, has created high hopes (Marcus and Hoffman, 1998). Other popular hormones are estrogen, testosterone (Tenover, 1992; Morley, 1993), Melatonin and DHEA.

### Growth Hormone

The current popularity of the grown hormones which are agreed by the people and shared amongst the scientists can be found in real studies of Solomon, with deficient subjects, related to the beneficial effects of the growth hormone supplementation on the lean body mass and body composition (Salomon et al, 1989). In a study conducted by Rudman and colleagues (1991), they gave growth hormones, as an anti-aging measure, to men over the age of 60 with the expectation that the supplementation of growth hormone will repair the decline of lean body mass within the increasing adiposis that is related to age and they found a significant progress as a result of 6 months of treatment (0.03 mg/kg body weight three times a week). Researchers have reported a 4.4% decrease in age mass, 7.1% increase in skin thinness and 8.8% increase in a lean body (Marcus and Hoffman, 1998).

### Estrogen

Estrogen therapy is known as one of the most successful hormonal intervention in specific women depending on aging to slow their bone loss, in addition it is known much more than other hormonal intervention due to a long history of research. Estrogen to reduce the risk of developing Alzheimer's disease vascular dementia or cognitive functions post menopause in women in ageing-specific, the other potential benefits of the new studies suggested more promises. (Birge 1998, Yaffe et al 1998). It is also known as a heart-protective estrogen, has an ability to increase the plasma HDL (Sullivan 1996).

A powerful vasodilator which is much more widely available for transactions that aging can have calculations for approximately 30% of heart protection estrogen and it shows estrogen with lipid changes with accounts of nitric oxide synthesis up-regulation (Nekoeian and Panz 1998). Therefore, if studies and the adverse effects with other hormonal interventions are downgraded, the future of estrogen intervention could be promising in terms of aging studies (Barrett-Corner 1998).

### DHEA Story

During adulthood, levels of dehydroepiandrosterone (DHEA) which is one of the highest androgenic steroids gradually decrease with age. Physiological roles of the DHEA still are not well-defined.

Regardless of this uncertainty, it has increased hope thanks to its preventive effect as a popular anti-aging factor against many degenerative conditions



related to age such as cognitive impairment, osteoporosis, weakening of the immune system and cancer (Han et al 1998, Inserra et al 1998, Carney et al 1991, Sves and Porter 1998). When most of the evidence on the reinforcement effectiveness/efficiency is based on the growing studies, it should be paid attention that a very few of them are based on human studies, therefore direct application on humans is much less reliable.

All the data collected so far about the efficiency of the DHEA in human subjects have shown variable results. From these results, would the brain synthesize the DHEA for example? What is the exact location or locations of the DHEA movement? Does the brain have DHEA receptor? Many important questions such as these require more systematic research on the brain. The extensive studies using both animals and human subjects are important in terms of determining the validity of the DHEA before accepting it as a serious anti-aging measure.

#### **Melatonin**

Another hormone that with its popularity rapidly increasing the public demand is melatonin. It is a pineal gland hormone and is secreted in a circadian (24-hour rotation) method. Its production gradually declines and becomes age-related. In a study on aging, melatonin was seen as little indirect because it is associated with a neurotransmitter which has nothing to do with aging when compared to the circadian (physiological rhythms related to the 24-hour rotation of the earth) rhythm which is the main function of its scientific production and the other similar hormones.

Therefore, a critical question must be asked, in good faith, about a physiological structure for the purposes of creating an anti-aging measure. For example, how does the change in circadian rhythm cause a move that delays aging? Although there are some claims about the ability of melatonin on extending the life span of animals, there is no independent verification studies conducted so far.

Along with this, recent melatonin studies have started to uncover some surprising data that melatonin is either an anti-oxidant that affects the aging process or works as an immune stimulator instead of functioning as a hormone or a neurotransmitter. For example, the melatonin in an in-vitro test mixes the stung perxyl radicals much more effectively than vitamin E. If this fact is effective in a biological system, then the melatonin can provide a preventative action against the oxidative damage.

Supporting this assumed role is a proof of the melatonin's functions as a cell stabilizer. If this is correct, then the argument for melatonin as a possible anti-aging intervention has a strong physiological basis. Along with this, the use of melatonin as a good-natured anti-aging factor has many questions that require answers. Many uncertainties that are similar to other hormones have recently been evaluated as critical (Yu, 1999).

In summary, functional longevity through hormonal intervention and successful aging are the last goals and the current goal of the effective treatment approaches. Which remaining questions about the hormonal intervention should be addressed by a future study? Here are the many questions that need to be answered: What are the potential benefits and risks of hormonal interventions? Is the metabolic use measureable according to the total metabolic results? Furthermore, its connected network along with the long-term hormonal intervention effect on all the hormonal balance should be evaluated carefully. Thus, the most appropriate hormone dose level should be determined and should be a part of the accepted aging study procedures.

Because the casualty and course of aging is versatile, no one should expect a single intervention in order to significantly prevent the aging and the pathological processes.

#### **Nutrition**

Free radicals are unstable and harmful chemical substances that occur during normal metabolism functioning of the body and increase when exposed to stress (x-rays, solar rays, excessive physical and mental fatigue, environmental pollution, smoking, etc.). The substances that catch the free radicals (oxidants) and disarm them are called antioxidants. Under normal circumstances, they neutralize the free radicals with the natural antioxidant systems and prevent the damage the free radicals will cause but over time this mechanism becomes insufficient. Two factors weaken the body's defense power:

- Harmful substances acquired from the environment and food are increasing more and more. Today's generation is faced with more free radicals than the older generations.
- The activity of the enzymes increase as the age advances.

For these reasons, our body's own defense system alone is not enough. The body needs external support and anti-oxidants to fight the free radicals. Fortunately, nature provides us with many nutrients with very powerful anti-oxidants. The anti-oxidants are certain enzymes, hormones, vitamins, minerals and herbal chemicals and the most effective anti-aging substances. With the help of these, diseases can be prevented, hormonal balance can be maintained and the aging process can be delayed. The best protection against free radicals is to know the anti-oxidants, to be nourished and to keep the effectiveness of the support products at the highest level. Below are some of the best and most effective anti-oxidants. There is no need to use all of these at the same time. It will be beneficial for you to get your physicians to assist you in choosing some of the most suitable one for you (Kavas, 2003).





### **Vitamin E**

Vitamin E is a fat-soluble anti-oxidant. With this method, it protects the cell membrane from the damages of the oxidation activities, connects to the oxidized fats that have gathered within the artery walls and minimizes them, and prevents the formation of plaque. Vitamin E reduces the heart infarction by 49%. In addition, with its blood thinning effect, similar to aspirin, it prevents the formation of blood clots. As a powerful anti-oxidant, it prevents cataract formation and aging of the immune system. Major sources of Vitamin E include grain, eggs, hazelnuts, soybeans, vegetable oils, spinach and green leaves.

### **Vitamin C**

Vitamin C melted into water cells by strengthening free radicals and prevents their damaging DNA. Lowers blood pressure increasing the immune system reduces the risk of cataracts and cancer in old age. Excreted in the urine.

Here are the major sources of vitamin C; citrus fruits, green vegetables, potatoes.

### **Carotenoids**

The carotenoids are nutritional elements that give color to fruits and vegetables. The most important carotenoids for our body, out of hundreds, are beta carotene, lutein, xanthine, cryptoxanthin and lycopene. Using plenty of yellow, orange, red colored fruits and vegetables and dark green leafy vegetables that contain high carotenoid reduces the risk of cancer and the occurrence of age-related diseases (cataracts, cardiovascular diseases). Carotenoids have effective strong anti-oxidants and prevent the damage that the free radicals cause to the body's cells.

Major sources of carotenoids are: apricots, broccoli, carrots, peaches, spinach, pumpkin and red peppers.

### **Alphalipoic Acid**

It is a strong defender against free radicals. It is a substance, produced naturally in the body. Due to both resolution in oil and in water, protects the cell structures and membrane from free radicals. Mitochondria within a cell energy station. Here is the place energy generated. For this reason, mitochondria's oxygen stress (free radicals) is the highest fraction. In particular, mitochondria need antioxidant protection. Glutathione is the most important preservative for mitochondria. Alphalipoic acid is a key ingredient for the formation of glutathione (Rumsey et al 1998). Alphalipoic acid enters into mitochondria prevents the formation of free radicals. Alphalipoic acid helps diabetes prevent its complications. Prevents skin wrinkles to this end, the volume is added to the skin creams. Improves the functions of the brain, liver, cataract formation and delays aging. It is recommended to take day 1 or 2 times 50 mg tablet per day. (Rose 1996).

### **Grape Seed Extract**

Provides significant benefits against heart diseases and certain types of cancer, and it has been established that it is good, at the same time, for inflamed joint rheumatism and in treatment of some allergies, varicose veins, hemorrhoids, blue spots on the skin and age spots. 100mg a day is sufficient.

### **Green Tea**

Green tea has an effect of lowering cholesterol level in the blood. It has been determined in the studies conducted that it is also effective against many cancer types. Drinking 1-2 cups a day is recommended.

### **Lutein**

Lutein is one of crocetin and active antioxidant. Especially, removes the free radicals formed by the Sun's harmful ultraviolet rays, it was also proved to delay the macular degeneration which causes widespread blindness in advanced ages. Lutein is rich in green vegetables (spinach, etc.). if it is not consumed enough amount, it is recommended to take 6 to 20 milligram tablet once a day.

### **N-Acetylcystein**

Nickname of NAC is used for its abbreviation. It increases the glutathione production of the body. It is a natural anti-oxidant and is produced by the cysteine's in the liver, glutamic acids and glycine amino acids. Prevents the damage caused by the free radicals to all our organs and tissues. Glutathione protects the immune system and can prevent the harmful effects of radiation, cancer treatment drugs, cigarettes and alcohol. It is also used as an anti-inflammatory for the inflamed joints and allergies. 600mg of NAC tables are used daily in order to increase the production of the glutathione.

### **Selenium**

Frequency of cancer in the region of Keshan, China where there is no selenium, has revealed this substance's cancer protection effect. Plays an effective role in the metabolic functions as a component of the enzymes. Selenium has a very important place in production of the glutathione peroxidase enzyme which is the most important natural anti-oxidant in our body. It also disables heavy metals such as lead, mercury and cadmium not just free radicals. Strengthens the immune system and provides support for the tissues to remain elastic and supports in reducing the risk of cardiovascular diseases and stroke.

Shelled wheat and rice, onions, garlic, tomatoes, broccoli, hazelnuts, walnuts and seafood are the natural sources of selenium. Taken 50 to 100mcg tables a day as supplement.

### **Coenzyme Q-10**

In order for our cells to carry out their normal function, they need energy. It is the energy producer of the mitochondria cell. The energy of the body is provided by the ATP. The enzyme activator, Q-10, is the main chemical for the production of ATP. Q-10 fights as an anti-oxidant within the army that fights



against the free radicals. Q-10 supports vitamin E. Coenzyme Q-10 protects the heart and lowers blood pressure. It is thought that Q-10 plays a part in fish preventing blood clots. If there is a risk of a heart disease, it is beneficial to take 30 to 50gr of coenzyme Q-10 and 400 IU vitamin E. Coenzyme is a substance that exist in the human body, in food (soy, spinach, broccoli, sesame oil) and especially in fish (Yilmazturk, 2005).

#### **Physical Activity (Exercise)**

It is possible to count the benefits of exercise as follows:

- Reduction in blood glucose and triglycerides and increase in the HDL,
- Improvement in mild and moderate blood pressure,
- Helping with diet to lose weight,
- Increase in cardio-vascular condition,
- Increase in body elasticity,
- Increase in quality of life.

Before starting exercise, you must consult with your doctor in order to determine the right exercise type for your state of health. The exercises that are beneficial for health must be carried out with awareness and in a planned manner on certain days of the week. Exercises that are done occasionally and in irregular manner have a very limited contribution to our health. Exercises that are last at least 30 minutes, increase the pulse to a certain level and are performed 5 days a week can be beneficial in terms of health. The best example for these exercises would be walking in pace, riding a bike or swimming. Muscle strengthening exercises are performed 3 or 4 times a week and strengthen the muscles of our arms, legs and abdomen. These exercises have an effect on increasing our growth hormones as well as working our cardiovascular system ([www.antiagingtr.com](http://www.antiagingtr.com)).

#### **The effects of physical therapy on memory**

Exercises provide more powerful memory in humans. It is known that exercising prevents the decrease in mental form. The ability to remember the events of the distant past will not deteriorate with age, however, short-term memory declines with age.

Aerobic exercises also help to increase the amount of message transmitting agents in the body, so that the messages reach the brain cells much more quickly. Aging can also affect the intellectual or conceptual ability. Brain needs more oxygen for this type of memory. Quick thinking and quick comprehension of ideas being to decrease in adults and continue until old age. Aerobic exercises slow down this aging process.

#### **Relationship between Physical Activity and Obesity**

Exercises have an important contribution in reducing excess weight. However, in order for the people with excess weight to acquire results from exercising, they must show great efforts. Many people believe that the aerobics, swimming, walking or

running they have performed for a certain period of time will result in excellent weight loss but this belief is wrong. Of course you might see approximately half kilos of difference between the before and after exercising but this loss is a disposal of water as a result of sweating, not a disposal of accumulated fat from the body.

It is a fact that this is temporary due to the water loss only. And because the body will consume the necessary new liquids in order to prevent this loss, it is inevitable to return to the old weight in later hours.

#### **Physical Activity and Diabetes**

Exercising protects the body against diabetes and it increases the body's sensitivity to insulin. With the increased sensitivity to insulin, the blood sugar level drops and insulin production is reduced. People who are on the move have less risk of having type-2 diabetes even if they are genetically prone. Exercises ease the blood sugar level in diabetes. In type-2 diabetes, the body begins to produce less insulin. Physical activity may prevent or delay diabetes. For type-2 patients, exercises can even substitute for the anti-diabetic drug to a certain extent. Therefore, exercising is a treatment method that should be carried out with the same importance together with losing weight, using drugs and diabetes. It increases the effectiveness of the drug treatments and enables the chance to use less medication.

Compared to the people with immobile lives, people who are older but exercise regularly releases less insulin against the sugar increases in the blood (Kavas, 2003).

#### **Physical Activity and Hypertension**

High blood pressure is a major risk for the heart and brain blood vessels. Many researchers have revealed that regular exercise lowers blood pressure in both hypertensive and normal people. While a short-term exercise increases the systolic blood pressure in healthy people, there are no significant changes in the diastolic blood pressure. With long-term exercises, they systolic blood pressure gradually decreases.

Exercises must be at least 3 times a week and not less than 35 minutes and increased slowly up to 60 minutes. The intensity of the exercises must be suitable for the age and should not exceed the 40-60% of the maximum heart rate. Intensive and strenuous exercises must be moved away from. If the exercises are performed for a particular resistance, then high resistance and excessive repetition must be avoided.

#### **Physical Activity and Heart Disease**

It is known that aerobic exercises help reduce the risk of cardiovascular diseases and reduces the probability of the first heart attack. While exercising, the muscles need more fuel, i.e. oxygen. Therefore, the heart pumps more blood so it is stronger and more effective.

The warm up moves before exercising slowly increase the heart rate, body temperature and the



blood flow to the muscles. Warm-up exercises should last between five to ten minutes.

There will be variety of movements that contain continuous and rhythmic contractions of the leg and arm muscles during aerobic exercises. The last stage of the exercise program is cooling. Cooling helps to slowly lower the heart rate to the same level before the exercise and prevents the excessive blood gathering in the legs. Dizziness may occur at times during the cooling process. For this purpose, low-intensity exercise, such as walking, should be done slowly for a three to five minute period. Later on, stretching exercises must be done in order to loosen the muscles, to provide flexibility and prevent muscle aches, so the cooling process should last for five to ten minutes. In order to cool down the sweat and restore the muscles to its original state, you should relax for a reasonable period of time, and then take a shower before getting cold and then rest.

Exercising leads to expansion of the blood vessels, so that the heart pumps the blood in front of it more easily to the other parts of the body. Exercise helps to increase the body's metabolic rate. It burns sufficient levels of calories in order to reduce the body fat thereby causing weight loss. Losing weight not only helps you feel better about yourself; it also reduces blood pressure which is a risk factor for a heart disease.

#### **Physical activity and hardening of the arteries (vessel stiffness)**

Older people who exercise regularly, their good cholesterol increase and **bad cholesterol and triglyceride ratio decrease**. In order to lower cholesterol, regular exercise must be done for at least three months. One of the methods to lower the risk of heart disease is keeping the cholesterol level under control. Exercises **increase the good-natured HDL-cholesterol level** that helps clean the bad-natured LDL-cholesterol from the artery. High-density and regular exercise increases the HDL level between 5 to 15%. Even when men exercise in moderate amounts, their harmful cholesterol levels (LDL-cholesterol) tend to decrease. For example, this effect can be achieved with 30-35 minutes of exercise three times a week (Yilmazturk, 2005).

#### **Conclusion**

The number of elderly people 65 years and over have shown an increase of 63% in the last 30 years. In our country, the amount of people who are 65 and over was 4.2% in 1985. According to the 1990 census, it increased to 4.3%. In 1995, this rate increased to 4.7%, in 2000 to 5.6%, in 2005 to 6.3%, in 2012 to 7.2% and expected to be at 7.7% in 2020.

Even though getting older is an inevitable end, important steps have been taken today with ANTI-AGING (delay aging) researches. One of the precautions that delay aging is to gain exercise habits. It also has been proven as a scientific fact that inactivity increased aging.

Decrease in muscle strength, endurance and flexibility, increase in fat rate of the body, coordination and balance impairment, heart rate irregularities, aging, lungs transferring smaller amounts of oxygen, hardening of the blood vessels, thinning of the bones, depression and similar illnesses are reported as the first felt symptoms of old age. Many researchers emphasize that at least 50% of the illnesses caused by old age are due to inactivity.

In order to prevent the illnesses, power loss and hormonal imbalances that may arise as a result of aging and to enable to stay younger for longer, we have to fight free radicals, have to be well-nourished and perform physical activities to stay young and most importantly, have to think positively.

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