

AGING AND EXERCISE: CONCERN FOR FITNESS OF THE ELDERLY FOR GRACEFUL AGING

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Abstract

The following changes are observed in the aged: malfunctioning of the body system, changes in cells, tissues and organ's structure, biological functions start slowing down, and physiological changes such as decreased breathing capacity, vital capacity and low basal metabolism become eminent. Physical characteristics - loss of hair and teeth, graying of hair, decrease in muscle mass, wrinkling of the skin and increase in fat deposits are also observed. Many aged people live alone especially, after the death of a spouse; and do not interact socially with others. The opportunity to interact with others diminishes after retirement; thus exercise programmes: endurance exercise to condition the heart, lungs and circulation; strength exercises for muscular strength as well as stretch exercises to improve joint mobility are advocated. Succinctly, regular involvement in social, physical, and creative recreational activities would provide an atmosphere conducive to developing friendships and to overcoming isolation and resulting loneliness. For the benefits of exercise to be achieved for the elderly, their nutrition should be considered as well. Thus, the aged should have exercise prescription appropriately from certified personnel. Exercise requires certain precautions for safety purposes. If done appropriately, their fitness would be simless as they age gracefully.

Keyword: *Aged, Healthcare for the aged, Fitness, Exercise, Aging, Elderly.*

Introduction

A common and persistent source of the ambivalence of humans is that; change is inevitable and; in one way or another, it affects us (humans) throughout our lives (Inengite, 2024a). Day to day, individuals in societies around the world are growing older; and that means that the society (Nigeria or African and non-African) is aging; that is why a child would grow up to the adolescence stage, then to become a teenager, then to a youth (Okunrotifa, 1995; Udoh, 2000; Salokun, 2012). General concepts about aging according to Inengite (2024a) is that:

- a) Aging is a universal process that brings about changes in structure and function;
- b) It lures increased vulnerability to environmental stress and diseases;
- c) Human life span is about one hundred and ten years but the maximum of life expectancy is not more than eighty-five years;
- d) Improvements and elongation of life span may be due to reduction in many life-threatening situations (hunger, anger, diseases, sickness and so on);
- e) On the long run, the aging process may be modified and life span and life expectancy elongated (Okunrotifa, 1995).

Changes in the Aged

Okunrotifa (1995) observed the following changes in the aged i) malfunctioning of the body system; ii) changes in cells, tissues and organs' structure; iii) biological functions start slowing down; iv) physiological changes such as decreased breathing capacity, vital capacity and lower basal metabolism. Aside the physical characteristics of aging such as loss of hair and teeth, graying of the hair, decrease in muscle mass, wrinkling skin and increase in fat deposits are well known (Salokun, 2012).

Age-related hearing loss has been observed as well as the most common sensory deficit in the elderly (Osisanya, 2019). He reiterated: as people grow old in life, reduced hearing sensitivity becomes a severe social and other problems, due to degeneration of the auditory system (Okunrotifa, 1995; Inengite, 2024a), by ageing and other health related factors (Osisanya, 2019). He posited: this type of hearing loss, most often impair the ability of the aged to maximally benefit from the exchange of information. This significantly impacts everyday life, causing loneliness, isolation, depression, dependence and frustration (Ciorba, Bianchini, Peluchi & Pastore, 2012) as well as communication disorders (Osisanya, 2017).

Age-related hearing loss impinges on the psychological well-being of the aged; with great adverse effect (Gates, Couropmitree & Myers, 1999). The impact of age-related hearing loss may be profound, with great consequences on the communication, psychological and functional well-being of the people or individual (Osisanya, 2019). This condition makes people who present with it to become defective in daily living communication and socio-emotional functions (being defective in activity and functions), to the extent of being incapacitated to enjoy the benefit of normal communication (Osisanya, 2014).

The individual may radiate limitations to the effectiveness of normal communication skills as a result of difficulty in understanding environmental speech sounds (Mondelli & Souza, 2012). The difficulty always leads to psychological isolation from the sound environment (Okunrotifa, 1995; Inengite, 2024a), limited awareness of auditory sign and signals, little or no appreciation of music, poor concepts resulting from lack of authority perceptions, frustration and stress (Osisanya, 2014; Adegboyega, 2017).

Theories about Aging

There has been no single explanation on why man (people) age(s). There are however, a number of theories put forth as regards this (Udoh, 2000). Authorities on gerontology according to him, are agreed that factors in environment (stress, life style and pollution) have a tremendous impact on the rate at which or how a person ages. Different people exposed to the same environmental insults are also known to age at different rates, he retorted. The theories include: genetic, wear-and-tear, homeostatic and cellular aging theories as presented.

Genetic Theory of Aging: Every living organism ages according to some genetic code. Thus in plant life, there are seasonal, annals as well as perennials. Some trees live for hundreds of years while others live just a couple of years. In animal kingdom too, there are differences in life span. Compare the life span of a cat and that of an

elephant. Some life forms pass through life cycles, such as those of the mosquito and the butterfly. There is some uniqueness about human life because of genetic influence. The influence of genetic inheritance is particularly clear in the case of identical twins who in spite of separation all through their existence age at the same rates, and nearly always die at about the same age. On the other hand fraternal twins frequently have life spans, which are dissimilar even when they are reared together., although the cases of identical and fraternal twins are not sufficient to explain how people age, there is some validity to the genetic theories of aging (Udoh, 2000).

The Wear and Tear Theory of Aging: This theory is also referred to as the biologic theory of aging. The human is a replica of a machine that is subject to wear and tear as a result of constant use (Oneke, 2007). Even though a person may escape early death due to such diseases as cardiovascular (heart) and cerebrovascular (brain) diseases and cancer due to life style and environmental adaptation, he may yet die of any of these at advanced years (Udoh, 2000). When this happens as late as ninety, it may well be an accident of timing, because had he lived another day, his lungs may have packed up or his kidney ceased to function. In fact it is quite possible that many of his organs and vital systems were living on borrowed time, and that one or several of them could have given up at any time he reiterated. Biologically the process of aging is entire, rather than particular parts at a time (Adegboyega, 2017).

Homeostatic Theory of Aging: This is a theory which states that over time, body chemistry becomes increasingly inefficient at the maintenance of stable levels of its chemical elements. It is believed that since the body's chemical processes are intricately interrelated, deterioration in one area can have accumulative dilatoriness effect on the body as a whole (Udoh, 2000). This theory buttresses the biologic theory which talks about the entirety of the process of aging. Some of the mechanisms whose failure is thought to have a cumulative impact on the body as a whole are the acid-alkaline balance in the cells, blood sugar levels, body temperature regulation and the excretion of toxins by the kidneys. The level of operation of these self-regulating processes in older people under rest conditions is similar to those observed in younger persons (Adegboyega, 2017). However, older people are less able to return to homeostasis or normal balance after physical and emotional stress, such as anger, high sugar intake, exercise or great changes in temperature. Generally, a stressful condition tolerated easily by a young person may be damaging to an older person, he retorted.

The Cellular Aging Theory: This theory assumes that all body cells divide and reproduce only a finite (definite) number of times. After this finite number, some scientists believe that certain cells begin to reproduce imperfectly. Other scientist believe that some cells deteriorate as a result of accumulated insults of injuries to the body. Thus, age invariably brings with it an ultimate decline in the number and quality of vital cells, and in the inclination towards adaptation to environmental change (Udoh, 2000).

As one ages, health deteriorates and physical changes manifest themselves in behaviour of the individual (Willis, 2001). The senses of the body diminish in quality and function, and the potential for growing old increases. But this theory assumes uninterrupted potential for aging which is not always the case, because disease, accident or other causes of death may intervene. Although there are evidence to show that there is reduction in the ability to function as one ages (Udoh, 2000), it is still

difficult to predict exactly how any particular individual would (will) grow old. For example, two 65 years-olds may look and act as if they were 25 years apart in age. In the final analysis, good nutrition and adequate health care over the whole span of life strongly influence the rate and quality of aging in any individual (Willis, 2001).

Okunrotifa (1992) hinted: lack of social integration is an essential causative factor in mental disorders of the aging. He observed that failure to retain a place in the community, to be a member of a family to have an appreciated share in the life of some household or working group; has been common among aged patients (Inengite, 2024a). Salokun (2012) added: aging brings a lowering of self-esteem against which many old persons fight like devils with mental and intellectual resources, he could master at a time when irritability, thereby a loss of vitality, vigour and sexual potency (Okunrotifa, 1992; Moronkola & Okanlawon, 2003).

Life Expectancy Disease of the Old and Medical Care

A healthy lifestyle would improve on one's life expectancy (Okunrotifa, 1995). There is no doubt that our bodies change as we age but these changes do not have to lead to health problem (Inengite, 2024a). Even if certain health problems run in our families we may be able to prevent them or keep them getting worse by making healthy lifestyle choices. There is no magic to vitality and health in old age. The best approach to good health at any age is to develop good health habits and stick with them. The following keys to healthy aging could improve your life expectancy (Okunrotifa, 1995).

- (a) **Keep your body moving (exercise):** Keeping physically fit may be the single most important thing you can do to maintain your health as you age (walking, swimming, or dancing). Do them regularly. Many everyday activities such as gardening and housework, raise one's heart rate and, if done regularly would (will) keep the heart and lungs healthy, make the muscles stronger, and improve one's flexibility (Inengite, 2024a).
- (b) **What you choose to eat affects many aspects of your life. Your diet plays an important role in helping you**
 - Get the nutrition your body needs
 - Maintain a healthy weight
 - Prevent problems such as constipation, cancers.
 - Treat diseases such as diabetes and high blood pressure (Willis, 2001).
- (c) **Maintain a healthy body weight:** Healthy bodies come in all shapes and sizes. Most people are concerned about being overweight, but for some people being underweight is a health concern. Being obese (i.e. having a body mass index of 30 or greater) can increase your risk of developing joint problems high blood pressure, high cholesterol, heart disease, type 2 diabetes, sleep apnea, some cancers, and other long-term illnesses. Your body mass index (BMI) is based on your height and weight (Willis, 2001; Okunrotifa, 1995), a healthy BMI for an adult is between 19 and 25. Disease risk increases both above and below this BMI range. Nevertheless, your health is determined by more than just your weight. Other measurements of health include:
 - Your fitness level

- The quality of your diet and eating habits.
- The presence of disease indicators such as high cholesterol.
- How fat is distributed on your body
- Your self-esteem and body image.

Note that losing as little as 5-10 % of your body weight can do good things for your health, such as lowering your blood pressure, reducing other risk factors for heart disease, and lowering your blood sugar level if you have diabetes. However, you can improve your health without changing your weight. The amount you weigh now could be, or could become, a healthy weight for you (Udoh, 2000; Willis, 2001).

- (d) Do not use tobacco:** Being tobacco-free is one of the most important things you can do to improve your own health and the health of others around you – cancer, heart disease, and stroke. No matter how long one had been using tobacco, once it is stopped, it does not take long for the body to start to heal and for the risk of developing other health problems to decrease (Okunrotifa, 1995).
- (e) Use alcohol and drugs wisely:** Alcohol and drug use can be very hard on your body. Alcohol, in particular, increases your risk for accidents and injuries by impairing your mental alertness, judgment, of the prescription and non-prescription medications that older adults take increase the intoxicating effect of alcohol (Willis, 2001). Long-term overuse of alcohol increases your risk for many illnesses, including liver disease, high blood pressure, and certain cancers. It can also put your relationship and livelihood in jeopardy (Okunrotifa, 1995; Inengite, 2024a). Never use prescription or non-prescription medications along with alcohol. Many medications, even as they are doing well, also have some risks. However, do not stop taking a medication unless your doctor tells you it is all right to do so (Willis, 2001)
- (f) Keep up with shots and screenings:** Immunizations provide protection against any serious diseases (Okoloba, 2024). Even if you had been immunized, there are several immunizations that need to be updated for the first time later in life. They include:
- (i) Tetanus (jaw):** this is a bacterial infection that can be fatal. The bacteria enters the body through a deep cut or puncture wound. Many cases of tetanus occur in adults over age 50 who have forgotten to keep their tetanus immunizations up to date. Routine boosters are recommended every 10 years (Inengite, 2024a).
- (ii) Influenza (flu):** Older people are more likely to develop complications of influenza (flu) such as pneumonia and dehydration. It is advisable that a flu shot be taken every autumn (Willis, 2001); for the following reasons:
- If one is age 65 or older.
 - You have a chronic lung disease such as asthma or emphysema.
 - You have heart disease.
 - You have diabetes.
 - If you have sickle cell anaemia or another red blood cell disorder.
 - If your immune system is weakened by illness or medication.

- You have frequent contact with people who could develop complications if they caught the flu from you (Nursing home people, 1 and 6 above)
- If you want to reduce your risk of getting the flu (Okunrotifa, 1995; Moronkola, 2003).

It should be noted: side effects exist. They are low grade fever, minor aches (they do not last long). In essence, the elderly (including) others should not get a flu shot if they are allergic to eggs: the virus in the vaccine is grown in eggs, and you may develop an allergic reaction it is retorted.

(iii)Pneumococcal Infection: Pneumococci is the bacteria that causes pneumonia and can also infect the blood (bacteremia) or the covering of the brain (meningitis). Older people have a higher risk than younger people of developing pneumonia and other pneumococci infections. A one-time-only dose of the pneumococcal vaccine is recommended for people age 65 and above, and can be gotten at the same time as the yearly flu shot. The following group of individuals can take the pneumococcal vaccines: a) those who are healthy, over 65, and have never received the shot and b) if you have a chronic illness, such as cancer, an immune system disorder, diabetes, or heart, lung or kidney disease. Side effects of the shot often include mild swelling and pain at the injection site.

(iii)Other immunizations: contact your local public health unit to find which other immunizations you need. Immunization may be needed in certain disease outbreak situations or for international travel (Okoloba, 2024).

(g) Periodic medical Exams and screening test: Another way to protect your health is to detect diseases early, when they may be easier to treat. This can be done in 2 ways: a) by getting periodic medical examinations; and b) by becoming a good observer of changes in your own body. If you are at high risk for certain diseases you may need more frequent examinations and tests. Please such a person should note that level of risk could be determined by your (one's):

- Overall health;
- One's family history (if close relative had some) lifestyle factors – tobacco, how often you exercise, and your sexual history.

(h) Practice Safety: Accidents do happen, but they do not have to happen to you. Many older adults are injured in car accidents, fires, and falls. If the following safety precautions are adhered to the risk of the above occurrences could be reduced (Udoh, 2000; Willis, 2001).

Fire Safety:

- Post emergency telephone and near telephones.
- Have an emergency exit plan in case of fire.
- Install smoke detectors in or near every bedroom and test the alarms once a month.
- Keep multipurpose fire extinguishers in the kitchen and near fire places. Shake the extinguishers once a month (the chemical would not settle at the bottom).
- Turn off appliances often use and replace frayed or damaged electrical cords on appliances.

- Do not run electrical cords under rugs or furniture and keep the cords away from bathtubs, showers and sinks.
- Install special safety outlets in your bathroom; ask for a ground fault circuit interrupter.
- Never smoke in bed or when you are sleepy.
- Do not tuck in electric blankets. Turn the temperature down before going to bed.
- Keep electric, kerosene, and propane heaters away from a curtains, rugs and furniture. If possible avoid them.
- Keep objects such as kitchen towels and papers away from the stove top and roll up long sleeves when cooking.
- Select a stove with controls that clearly show when the burners are on.
- If your clothing catch fire:
 - Do not run, because running would fan the flames
 - Stop, drop and roll on the ground to smother the flame or you can smother the flames with a blanket, rug or coat.
 - Use water to douse the fire and cool your skin (Okunrotifa, 1995; Udoh, 2000; Willis, 2001)).

Automobile Safety:

- Always wear a seat belt, especially if your car has airbags
 - Never drink and drive
 - Check with your doctor or pharmacist about driving while on medications especially insulin or an oral diabetes medication (dizziness, drowsiness, impair and judgment and balance problems could occur).
 - Be sure that your car is properly timed and equipped with emergency supplies.
 - Update your driving skills by taking a drivers safety course
 - Have your vision checked regularly, and always wear prescription eyewear when driving
 - Wear high-quality sunglasses to reduce glare.
 - If your night vision is limited do not drive at night.
 - If your hearing is limited, keep a window open and the radio volume low (Okunrotifa, 1995).
- (i) **Stay Mentally Active:** The “use it or lose it” approach applies to brain power. Memory loss and decreased mental function are inevitable aspects of aging. Just as physical exercise strengthens a muscle, mental training conditions the brain. The brain benefits from exposure to stimulating environments and activities, and this stimulation can help the individual retain his or her memory and stay sharp. To stimulate the brain we as individuals, including the old people,
- Need to do something new every day
 - Take classes or read books about new subjects
 - Read, write, talk, and think about what interest them
 - Use your non-dominant hand (left hand if one is right-handed, or vice versa) to operate the T.V. remote control, to use the telephone or brush one’s teeth (Udoh, 2000; Willis, 2001).

- (j) **Nurture the ties that Bind:** People who have many social ties are healthier than people with few social connections (Willis, 2001). Examples of social ties are – being married, having contact with friends and relatives, belonging to a church or social group, and volunteering to help others. In other words one should
- Create a support network of family and friends who would (will) help see one through a crises.
 - Find a friend one can confide in. Be a confidant for someone else.
 - Combine physical and social health by joining a walking group or exercise class.
- (k) **Accentuate the Positive:** The pictures we have as humans in our minds and the verbal messages of self-lack we give ourselves affect both our minds and bodies. It is believed that people with positive attitudes generally enjoy life more. Your body responds to your thoughts, emotions, and actions. Expect good things to happen, count your blessings and express thanks (Willis, 2001).

A thorough and regular medical checkup (examination) would always be beneficial to the elderly and if there is need for the patient to be treated, he or she should be taken care of by a professional with experience in any disorder that is confronting the aged (Okunrotifa, 1995).

Fitness, Exercise and the Elderly

Physical fitness includes two elements: general health, and the capacity for activity. These two aspects (Folawiyo, 1998), should, but do not always, go together. It is possible, for instance for an illness free-that is, medically fit - individuals to be incapable of even minimal exertion. These elements together – general health and the capacity for activity are essential for physical fitness. Physiologically, physical fitness is described as a “condition of the body that relates to physical endurance and efficiency of movement” (Okunrotifa, 1995). The greater the physical fitness, the longer, the person may keep going; he or she would (will) be able to perform more effectively and recuperate faster from fatigue.

Okunrotifa (1992) reiterated: the need for physical fitness for individuals (whether young or old) is universal. Inengite (2024a) posited; there is need for physical fitness status of the aged to be determined. The reasons are:

1. It enables educators to know where each elderly or aged person start in addition to his or her present status.
2. The medical personnel can use the test results for grouping, diagnosis, prescription and remedial purposes and use the results of the test to plan overall medical and perhaps educational programmes of each individual elderly person.
3. Testing would (will) guide in assigning the aged or elderly to developmental, remedial and corrective programmes.
4. Determining the aged physical fitness would (will) motivate and challenge them to improve their levels of performance.

5. Analysis of each aged person's fitness and motor skill provides information about individual ability to perform a specific task at a given time under one set of circumstances.
6. Recognition of the effect of each elderly's total experience such as self-assurance, competitiveness, self-image and pride is accentuated (Okunrotifa, 1992; 1995).

Basic components of Physical Fitness

The elderly or the aged like non-aged; need the following elements of physical fitness to carry out their day-to-day activities (Okunrotifa, 2006). The elements include: strength which is developed by working against resistance; power developed through explosive activities; muscular endurance which is developed through maximum repetitions performed against a fixed resistance; flexibility is developed in activities that provide maximum range of movement in a given joint; and balance is developed in activities where the postural orientation of the body remains motionless (Okunrotifa, 1992). All the aforementioned would be attained through exercise, he concluded.

Rational for Exercise for the Aged

According to Bolles (1990), the majority of low-back pain are due to mechanical injuries - strains and sprains - to the soft tissue (i.e., muscles or ligaments of the spine), and these problems do not show up on the objective tests available to medicine. The images produced by X rays, milligrams, CAT scans, or MRI do not reveal these injuries even though the patient can feel them intensely (Inengite, 2024a).

The treatment of low-back pain has always focused on accompanying functional impairments (Bolles, 1990). Such impairments include psychological, social, and physical damage, he reiterated. Each day at the Pain Center, he observed, we see how much more there is to treating back pain than the bed rest and narcotic pain medications that are usually prescribed by physicians who hope to control the pain. Back surgery is performed excessively, even though its long-term success in pain reduction is very low. We see the results of these partial approaches: "chronic pain" patients who are dependent on pain medications, physically out of condition, mentally depressed, and socially withdrawn (Salokun, 2012; Willis, 2001).

Majority of chronic-pain patients seen at the Pain Center of the Hospital for Joint Diseases Orthopedic Institute according to Bolles (1990) are low-back-pain sufferers. Most of them need narcotic painkillers just to do their daily activities and are out of shape physically, psychologically, and socially, he reiterated. Financially, too, they are in bad shape, and most of them have pending lawsuits or workman's compensation claims (Okunrotifa, 1995; Bolles, 1990). Majority also have had previous back surgery and have received some form of passive treatment such as the use of hot packs, ultrasound, spinal manipulation, traction, and so forth, he retorted. Active exercises, like emergency knee hugs, stretch tests, pelvic exercises, relaxation exercises, leg lifts and so on, were usually excluded from their treatment plan since most physicians do not prescribe them. Even if the patients had been given physical exercises by their physical therapists, the majority of them did not comply since they were specifically told by their doctors not to exercise when in pain. Most strikingly,

many of the patients are totally ignorant about their backs despite having undergone multiple back surgeries (Bolles, 1990).

It is unfortunate that health-care systems emphasize “treatment” instead of “prevention” of diseases (Inengite, 2024a; Okunrotifa, 1995). If we had put more resources into public health education and preventive medicine, telling, for example, back-pain sufferers the facts that, the current financial crisis of our health-care systems might have been avoided (Bolles, 1990). Majority of low-back-pain patients could have been prevented from becoming chronic sufferers - if only the health professionals they turned to had focused less on surgery, medications, and/or relying on passive treatments and had spent more time educating their patient about the active care of their backs as well as the importance of restoring physical function after an episode of back pain he retorted.

In the youngsters (young people), the value of physical activities are well documented (Okunrotifa, 1995; Adeniran, 2007), but have not been sufficiently demonstrated in the older adults (Inengite, 2024a). It was observed: current development from bio-medical, behavioural and social scientific studies (Okunrotifa & Alla, 1987), indicated that some of the detrimental aspects of aging could be adjusted through regular and well-structured individualized programmes of physical activity. Adeniran (2007) informed: socialization is one of the reasons for including fitness and recreation programmes in the lives of the aged (Willis, 2001).

Many aged people live alone after the death of a spouse and they do not interact socially with others (Inengite, 2024a). The opportunity to interact with others diminishes after retirement (Okunrotifa, 1995). A cardiologist; Harris in 1975 had suggested: exercise programmes, especially for the aged should include four basic elements:

- Endurance exercise to condition the heart, lungs and circulation;
- Strength exercises for muscular strength;
- Stretching exercises to improve joint mobility.

Okunrotifa (1995) and Adeniran (2007) alongside Moronkola (2003) buttressed: regular state of mind of most aged participants. All things being equal, recreation and sports would (will) provide an atmosphere conducive to developing friendship (Olorunola, 2007) and to overcoming isolation and resulting loneliness (Salokun, 2012; Okunrotifa, 2006; Inegite, 2024a).

Exercise Testing

Balogun (2004) had earlier recommended exercise testing – an establishment non-invasive diagnostic, prognostic and evaluative technique in cardiovascular medicine as a good way of improving health for the elderly. Exercise, a common physiological stress (Inengite, 2022; Balogun, 2004; Oneke, 2007b), can elicit CV abnormalities not present at rest and be used to determine the adequacy of cardiac function. Two types of exercise can be applied as a stress to the CV system: Isometric (Static) or Isotonic (Dynamic).

Dynamic exercise is preferred for testing because it put a volume stress rather than a pressure stress on the heart and it can be graduated (Balogun, 2004). Isometric exercise (e.g handgrip) on the other hand imposes greater pressure than volume load on the left ventricle in relation to the body's ability to supply oxygen. However, most activities usually combine, in varying degree, both types of exercise (Fletcher et.al, 1990). There is an increasing public awareness of benefits of exercise as evidenced by increasing number of fitness clubs in our cities. The exercise enthusiasts claim prophylactic and therapeutic benefits.

There are many who neglected exercise completely and prefer instead to watch others do it and many prefer to pay handsomely to that end (Balogun, 2004). The occasional widely reported exercise related to death reinforces any excuses for physical in-activities. For the sedentary individuals, there is risk involved in the sudden, unregulated and injudicious use of strenuous exercise (Folawiyo, 1998), especially if such an individual is a middle-aged adult who may have subclinical heart disease (Balogun, 2004). Legend has it that in 490 BC, Pheidippides, the original marathon man, died minutes after running 26 miles, 385 yards to Athens to announce a victory over Persia in the Battle of Marathon. Many years ago, a 45 year old runner giving to overextending himself entered a long-distance race wearing a T-shirt imprinted with a message "You have not run a good marathon unless you have dropped dead; - Pheidippides". Ironically, a week after entering the race, the middle-aged runner with the T-shirt collapsed during a long run, dead from coronary heart disease. It turned out that he had long ignored warning symptoms of chest pain (Brody, 1990)

The most comprehensive studies on the effect of physical activity on CV risk (Balogun, 2004); including blood pressure (BP) have been reported by Paffenberger et al (1983). Sedentary alumni were 35% greater risk for the development of hypertension (HT) while exercising alumni had significantly lower blood pressures than sedentary alumni. Other studies reported similar findings of the benefit of physical fitness in reducing the risk for CV disease (Blair et al, 1984; Kannel & Sorlie 1979; Pekkanen et. al, 1987).

While epidemiological evidence supports the view that maintenance of a high physical activity level is in itself an effective preventive against the development of coronary heart disease (Balogun, 2004), exercise testing is advisable before an individual 40 years of age or older begins exercise training or exercise programmes (Fletcher et.al, 1990)

Objective of Exercise Testing

The objective of exercise testing according to Balogun (2004) include:

1. To diagnose coronary artery disease and investigate physiological mechanisms underlying cardiac symptoms (angina, arrhythmias, inordinate blood pressure rise, functional valve incompetence)
2. To evaluate cardiovascular functional capacity for work, sport or participation in a rehabilitation programme or to estimate response to medical or surgical treatment.
3. To evaluate response to conditioning and / or preventive programmes.

4. To increase individual motivation for entering and adhering to exercise programmes (Committee on Exercise, 1972.)

Reducing Heart Risk for the Elderly

We are all conscious of the risk of heart disease (Willis, 2001). Family members, work colleagues and friends get heart disease and many die of it. Tragically, the age at which people are affected and die seems to be lower with passage of time (Okunrotifa, 2006), and frenetic lifestyle is at a price, he retorted. It is tempting to believe that we (people) would receive fair warning of personal heart disease, but that is not generally the case. Although heart disease can be present in the body from early age, we are often only aware of its presence when it's too late or almost too late to do something about it (Willis, 2001; Balogun, 2004). Apart from the general need to be alert to the possibility of heart disease we need to be especially careful if other close family members have a history of the condition (Willis, 2001).

Risk Factor

Clinicians have divided the risk factors for the heart disease, according to their relative value, into primary and secondary risks. Although there is some difference of opinion as to what should appear in which list overall the following risks are agreed:

Primary risk factor

- Obesity
- Cigarette smoking
- Hypertension (High Blood Pressure)
- High blood cholesterol.

Secondary risk factor

- Physical inactivity
- Low levels of protective HDL (High density lipoprotein) cholesterol;
- Diabetes
- Stress
- Excessive alcohol intake
- The estrogen content of some contraceptive pills

Other factors such as family history of heart disease, personality and hardness or softness of water all play a part.

Generally speaking:

- The more cigarettes smoked the greater the risk;
- The higher the blood cholesterol and the exercise taken, the greater the risk;
- If parents are long lived there is decreased risk for their children;
- People who are overweight and/or have diabetes are at risk;
- Individuals with stress and/or aggressive personalities are at greater risk; there is greater risk where soft drinking water is used.

These risk factors are accumulative as well as being inherently risky:

- Just using cigarette increases your heart risk one and half times;
- If you use cigarette and you have high blood cholesterol you have three times greater risk;
- And if you add high blood pressure to your list of woes your risk is five time more likely.

It is not only your heart that is put at the risk of disease. There are other problems associated with your circulatory system:

- If you have high blood pressure your risk of stroke is three times greater;
- If you are generally physically inactive you are twice more likely to have a stroke;
- If you do not exercise, but do smoke and have high blood pressure you are twelve times more likely to have a stroke because these risk factors multiply (Willis, 2001).

The Cholesterol Factor

A lot have been read and heard about cholesterol and its role in heart disease. According to Willis (2001), it is the stuff that adheres to the internal walls of arteries, gradually blocking them and reducing the flow of oxygen to important organs such as the brain and the heart (Inengite, 2022), with its resultant damage and, in many cases, contributing to the death of the individual (Oneke, 2007a). The average cholesterol in a 140 lb/63.5 kg person is around 4.93 oz/140 gms; and in the blood is about 150-250 milligrams per 100 millilitres (Willis, 2001). The liver produces cholesterol, which it uses as part of the chemistry of hormone production and the bile acids used in digestion. Dietary saturated fat is converted in the liver to cholesterol and it is also absorbed directly from some of the food that we eat – such as eggs – although our body has no need of external cholesterol. Other dietary and genetic factors along with obesity influence the amount absorbed (Willis, 2001).

The cholesterol that comes from outside the body is different from that which is manufactured in the body (Willis, 2001). Dietary cholesterol is called low density lipoprotein stances in the artery wall. Over time this deposit accumulates and so high levels of LDL are associated with the body is a protective cholesterol and is called fatty density lipoprotein (HDL). He posited: HDL removes the fatty deposits of LDL from the artery wall and recycles it to HDL. According to him (Willis, 2001), high levels of HDL are associated with low levels of heart disease. Our bodies produce less HDL if they are receiving dietary cholesterol, he retorted. The ratio of HDL to LDL is therefore an important indicator of heart risk. A blood test would (will) determine the total cholesterol present – as well as this critical ratio (Willis, 2001) - and the presence of other blood chemistry increasing the risk of heart disease (Oneke, 2007b; Balogun, 2004).

Remedying the Risk Factor

We cannot do too much about heredity, advancing age, and some environmental factors, but we can minimize the risk by adopting a healthy lifestyle and avoiding any extra, unnecessary risks. Clearly, the implications of many of these risks according to Willis (2001) suggest their own remedy:

- ❖ The obese need to lose weight;
- ❖ Smokers need to quit smoking;
- ❖ The inactive need to exercise. A regular walking programme – whether short, intermediate, or long – reduces harmful cholesterol levels and raises the protective ones. A short walk need be only 5-10 minutes twice a day, or a long walk taking 20 – 40 minutes. Anything better than these can be considered a healthful bonus;

- ❖ The stressed need to learn and practice a regular relaxation technique and eliminate, as far as possible, the causes of their stress.

Along with these sensible measures there are also sound dietary recommendations for the reduction of harmful cholesterol (Willis, 2001).

We need to reduce:

- ❖ Total fat intake and keep the saturated fat part of that to a minimum;
- ❖ Calories to match our ideal weight;
- ❖ Refined sugars which will quickly and easily push the calories up;
- ❖ Alcohol intake – if used at all – since alcohol weakens heart muscle as well as providing unnecessary calories;
- ❖ Salt intake – raised quantities of which are associated with high blood pressure.

We need to increase:

- ❖ Vegetarian-type foods;
- ❖ Complex carbohydrates – brown rice, whole meal pasta and breads – wheat their high fibre content;
- ❖ Used of grains, vegetables and fruits.

For added enjoyment, a wide variety of legumes, fruits, vegetables and grains should be used where possible. Taste would (will) return and the heart will benefit from all these special measures (Willis, 2001).

Exercise of course has some beneficial effects as presented by Inengite (2022): exercise benefits pulmonary and circulatory functions, helps preserve bones; and it maintains body weight, relieves depression and anxiety and enhances self-esteem (Bucher & Krotee, 2002). It has been considered an antidote to health (Morankola, 2003), and it is no less so for the health of the elderly and aged. It is observed that the greatest costs of aging is declining ability to perform daily chores which contribute to, not only personal well-being, but also the community members (Morankola & Okanlawan, 2003). While some studies have shown how aging undermines physical strength and psychomotor performance, others show that exercise can counteract some of the harmful consequences of aging such as the ones mentioned earlier.

Exercise has been looked upon as the single most effective anti-aging “pill” ever discovered (Willis, 2001). The view was expressed at the end of a conference on the “role of exercise in preventing physical decline” jointly sponsored by the National Institute of Aging (NIA) and the President’s Council for Physical Fitness and Sports, both of U.S.A. The conference emphasized the fact that: it is important to encourage the elderly to undertake some form of exercise daily, no matter how mild (Willis, 2001; Inengite, 2022). The simplest form of physical exercise is walking (Willis, 2001). Jogging can also be encouraged if the elderly is able to jog, he reiterated. Light gardening round the house, and activities such as washing dishes and putting things away are helpful activities which not only exercises some parts of the body but also gives a sense of self-esteem (Inengite, 2022). A good daily work out encourages good appetite and good night sleep (Oneke, 2007a; Willis, 2001).

Value of Physical Exercise

The human body is like a machine, and exercise keeps its various parts in good working order (Moronkola, 2003). Physical exercise has been proved to increase heart rate, blood pressure and volume carrying food nutrients to active muscles; hastens the removal of lactic acid through the kidneys, eliminates carbon dioxide produced during muscular activities, induces deeper breathing and increases oxygen inhalation. It activates the sweat glands and cutaneous blood vessels (Inengite, 2022). The mind and functional coordination of the neuro-muscular system are alerted. Physical exercise also increases mobility of the joints, cardiovascular endurance, the tone and efficiency of the muscles as well as the size of active muscle fibres (Adeniran, 2007), and it promotes muscular control and skill (Inengite, 2024a). In summary, exercise improves the effectiveness of the individual in meeting emergencies, thereby preserving health and avoiding disabilities and possible premature death (Udoh, 2000).

These proven physical and physiological benefits attributed to physical exercise and such other values as the promotion of collateral circulation which prepares the cardiovascular system to survive coronary thrombosis or myocardial infraction (Balogun, 2004), a common health problem of the aged, makes physical exercise a necessity for everyone young or old, those with sedentary job as well as those whose job keeps them on the move (Adeniran, 2007). How much physical exercise a person needs will necessarily be dependent on the age of the individual as well as the nature of his job (Willis, 2001). Another of the benefits ascribed to exercise is that it mellows the impact of such risk factors as smoking, high blood pressure, obesity, family history of heart attack and previous non-participation of physical activities (Okunrotifa, 2006; Inengite, 2024). It is however, very important that if any one wishes to participate in a programme of strenuous exercise, especially if such a person is new to it, he must do so with appropriate supervision (Willis, 2001).

Your Health Depends on What You Eat

For the elderly to truly benefit from exercise, the aspect of their nutritional intake has to be taken into consideration. You are what you eat, so stated Oneke (2007a) and Moronkola (2003). What is invested in any human life to a large extent gives appropriate returns to the body they reiterated. These chemical substances that regulate body processes development (the most obvious to many people): these are known as nutrients (Moronkola, 2003; Salokun, 2012). The essential nutrients are: fats, vitamins, carbohydrates, proteins, minerals and water (Inengite, 2024a; Moronkola, 2003). The efficacy of many drugs on man's health maintenance (including the aged), health promotion as well as recuperation from sickness depends on food in addition to the facts that food itself has medicinal value to the body (Moronkola, 2003).

The health of our skin, eyes, teeth, hair, heart, lungs, brain and so on (Moronkola, 2003) depends on the quantity and quality of what we eat. Proteins are nutrient found in meat, fish, egg and beans for proper growth, development and repair of body tissues (Okunrotifa, 2006). Carbohydrates provide the body with most of the energy requirements. Maize, yam, rice, cassava products, flour products are good

sources of carbohydrates (Moronkola, 2003). He also said: fats provide additional energy; as it helps the body to store vitamins A, D, E, K. since they are stored in tissues, they cushion or keep the liver, heart and kidney in shape he retorted.

The aged need a lot of fruits (Inengite, 2013). A lot of chemical reactions take place in the body and for these to continue effectively, vitamins, A, B, C, D, E, F are needed (Willis, 2000); these are present in many fruits and food products like carrots, oranges, leafy green vegetables, sweet potatoes, cereals and others (Moronkola, 2003). Vitamin deficiencies could result to poor mental health skin disorders poor bone growth, inadequate blood, diarrhea and poor or slow healing of wounds (Inengite, 2024a; Moronkola, 2003; Bucher & Krotee, 2002). Minerals constitute about four or five percentage of body weights regulating many of the chemical reactions in the body (Moronkola, 2003). They serve as body building materials and regulations (Willis 2001); certain proportion of bones, teeth, hair, nails, skin, glands, nervous tissues, blood are made up of minerals (Adeniran, 2007; Inengite, 2024a; Moronkola, 2003).

Humans all need balanced diet and adequate nutrition. The culture of modern day expensive fast food is denying many people of good diet (Willis, 2001); but it also makes people to erroneously think they are “classy” if they daily patronize fast food outlets (Moronkola, 2003). With man’s need for diet; special interest must also be paid to the diet of the aged as the aging process leads to functional decline in body systems, and common diseases amount the aged (diabetes, stroke, cancer etc.) which apart from medications require therapeutic nutrition (Moronkola, 2003). With all these said, Balogun (2004) stated: the risk of sudden cardiac death is increased with unsupervised jogging, squash and competitive high intensity forms of exercise in people at least 40 years of age. Thus, people, especially, the aged should have exercise prescription appropriately from certified personnel; this is because exercise requires certain precautions for safety purposes:

1. It should be avoided when feeling unwell, and immediately after eating.
2. Adjust exercise to the weather and drink adequate fluids (not beer) to maintain hydration.
3. Understand personal limitations
4. Be alert for symptoms.
5. Start slowly with warm up exercises, progress gradually, and avoid stopping abruptly by doing cool down exercises (Adeniran, 2007; Inengite, 2022; Balogun, 2004; Willis, 2001).

Conclusion

The following changes are observed in the aged: malfunctioning of the body system, changes in cells, tissues and organ’s structure, biological functions start slowing down, and physiological changes such as decreased breathing capacity, vital capacity and low basal metabolism become eminent. Physical characteristics - loss of hair and teeth, graying of hair, decrease in muscle mass, wrinkling of the skin and increase in fat deposits are also observed. Many aged people live alone especially, after the death of a spouse; and do not interact socially with others. It should be avoided when feeling unwell, and immediately after eating. Adjust exercise to the weather and drink adequate fluids (not beer) to maintain hydration. Understand

personal limitations. Be alert for symptoms. Start slowly with warm up exercises, progress gradually, and avoid stopping abruptly by doing cool down exercise.

Recommendations

Active exercises: emergency knee hugs, stretch tests, pelvic exercises, relaxation exercises, leg lifts and the likes alongside other forms of exercises are recommended. Exercise testing especially for the aged had earlier been recommended. Exercise testing is an established non-invasive diagnostic, prognostic and evaluative technique in cardiovascular medicine; it is a good way of improving health for the elderly. This is because, the risk of sudden cardiac death is increased with unsupervised jogging, squash and competitive high intensity forms of exercise in people at least 40 years of age. Thus, people, especially, the aged should have exercise prescription appropriately from certified personnel. Exercise requires certain precautions for safety purposes.

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