

SUSTAINING OPTIMAL HEALTH AND DISEASE CONTROL THROUGH FITNESS ACTIVITIES

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Abstract

Developing and sustaining optimal health is a problem confronting people of all ages in Nigeria. Scientific researches have shown that increased technology and mechanization in all spheres of human existence, has resulted in increased sedentary lifestyle. People have little or no time to engage in physical activities of moderate or vigorous types channelled towards development of total fitness, which is critically important for the health and well being of people of all ages. Consequences of these sedentary lifestyle is degenerative changes which weakens the body making it prey to chronic diseases and conditions including heart disease, stroke, colon cancer, diabetes, obesity, and osteoporosis. Research studies have shown that regular physical activity has beneficial effects on most organs of the body, and consequently helps to prevent a broad range of health problems and diseases in people of all ages. This paper discussed concept of fitness, health, disease, and physical activity; components of total fitness. The paper recommends that government and non governmental organizations should create awareness through seminars and work shops both at rural and urban areas on benefits of fitness activities.

Developing and maintaining acceptable level of fitness had been emphasized as factors necessary for averting degenerative diseases and realizing optimum well-being. Since the beginning of the industrial revolution, lack of physical activity had been increasing and can now be noted as a global public health problem. With increased technology, mechanization and automation came increases in sedentary lifestyles. A sedentary lifestyle is defined as engaging in no leisure-time physical

activity (exercises, sports, physically active hobbies) in a two-week period. (United State Department of Health & Human Services, 2002). Scientific evidence shows that loss of functional capacity, increased morbidity and mortality attributable to chronic diseases like diabetes, cancer, depression, arthritis, heart diseases and injury are associated with sedentary lifestyle in adults (USDHHS, 2002). Murray 2002 expressed that American Heart Association has included physical inactivity as the fourth risk factors for cardio-vascular disease in addition to smoking, high levels of cholesterol and hypertension which are all inactivity related. This is buttressed by Bortz (1982), who expressed that many degenerative changes usually attributed to aging are caused by lack of regular exercise.

Physical activity is any bodily movement produced by skeletal muscles that result in an expenditure of energy. From this definition, physical activity embraces exercise and sports. Exercise is physical activity that is planned or structured. It involves repetitive bodily movement done to improve or maintain one or more of the components of physical fitness. Sport as an aspect of physical activity refers

to any physical activity engaged in whether indoors or outdoors with intention of obtaining results among which is good health. Health according to Myers (2008) is the general condition of the body or mind, especially in terms of the presence or absence of illness, injuries, or impairments. Nancy (1987) gave a World Health Organization concept of health as a state of complete physical, mental and social well-being and not merely absence of disease or infirmity. Nancy equally defined disease as any deviation from or interruption of the normal structure and function of any part of the body. Research studies demonstrate the need for promoting physical activity through physical education to enhance good health and well-being. Regular physical activities channelled towards development of total fitness are critically important for the health and well-being of people of all ages (Murray, 2002). Butter, Devis and Lewis (1998) buttressed the above point by stating that all individuals can benefit from regular moderate or vigorous health enhancing physical activity. They stressed that even among frail and very old adults, mobility and functioning can be improved through physical activity.

Despite well-known benefits of physical activity, most adults and many children

lead a relatively sedentary lifestyle and are not active enough to achieve these health benefits. Data from the National Health Interview survey shows that in 1997-98 nearly four in ten (38.3 percent) adults reported no participation in leisure-time physical activity. Approximately one-third of persons aged 65 and above lead a sedentary lifestyle. Older women are generally less physically active than older men. Fifty four percent of men and 66 percent of women aged 75 and above engage in no leisure time physical activity (USD HHS, 2002). Another study in the mid 1990's shows that African American older adults are less active than white older adults. Data shows that 37 percent of white men aged 75 and above reported no leisure-time physical activities compared to 59 percent of African American men aged 75 and above. Also, 47 percent of white women aged 75 and above reported no leisure-time physical activity compared to 60 percent of African American women aged 75 and above (Centres for Disease Control and Prevention, 1999). This prevailing situation with African Americans may likely exist among Nigerians.

According to Kan (1999) a study on adolescents shows that more than one-

third of young people in grades 9-12 do not regularly engage in vigorous physical activity, whereas 43 percent of students in grades 9-12 watch television more than two hours per day. From the foregoing, physical activity declines dramatically over the course of adolescence, and girls are less likely than boys to participate regularly in vigorous physical activity. This physically inactive lifestyle cultivated in youthful stage may be carried into adulthood creating room for on set of degenerative diseases. The opportunity to be active on a regular basis, as well as the enjoyment and competence gained from activity, may increase the chances that a physically active lifestyle will be adopted for life (CDCP, 1997).

In a 1993 study, 23 percent of deaths in the United States were attributed to major chronic diseases linked with sedentary lifestyles. (Hanh, Teuesch & Rothenberg, 1986). Today, millions of Nigerians suffer from chronic illnesses like heart attack, coronary heart disease, diabetes especially type 2 which is associated with obesity and physical inactivity, colon cancer, hip fractures, blood pressure. Physical activity has been shown to reduce the risk of developing or dying from the above

degenerative diseases. On the average people who are physically active outlive those who are inactive (Paffenbarger, Hyde & Wing, 1993). From the foregoing, regular involvement in physical activity leads to attainment of total fitness.

Concept of Fitness

Fitness can be total, specific, or general. Total fitness is a thorough or complete development of the individual both in mind and body. It embodies the cultivation of all the dimensions of man: the physical, mental, emotional and social. According to USDHHS (1996) fitness is a set of attributes that people have or achieve that relates to ability to perform physical activity. This definition relates more to specific fitness which is when an individual performs a particular task with a reasonable degree of efficiency, without fatigue, and with a rapid recovery from the effects of the exertion. American presidents council on physical fitness and sports (APCPFS, 1990) defined it as the ability to perform daily tasks vigorously and alertly with the energy left over for enjoying leisure time activities and meeting emergency demands. General fitness refers to the absence of disease and proper functioning of all body organs and parts. Nwimo and Nji (2005)

viewed fitness as the capacity of an individual to function effectively in his environment. This is more encompassing in terms of total fitness. Total fitness therefore is the ability of an individual to enjoy an alert and enquiring mind, emotional stability, a satisfactory level of social adjustment, a robust health and a proficiency in the basic skills of movement.

Aspects of Fitness and Psycho-Physiological Effects of Physical Activity.

Aspects of fitness include mental, emotional, social and physical fitness.

1. **Emotional fitness:** This is considered as the ability of the individual to react to situations in a way that is appropriate for one's age and for a given situation. Regular physical activity and exercise calms body cells and nerves thus shown to reduce anxiety from stress and be a mood enhancer. Studies have found that participation in physical activity has potential to promote psychological well-being. Psychological well-being includes positive feelings about body image, improved self-esteem, tangible experiences of competencies and success, as well as increased self-confidence (CDCP, 1997; USDHHS, 1996). People of all ages are bound to drive the same benefit.

2. **Mental Fitness** is an individual's ability to perform normal mental processes. Physical activity help the mind stay strong to create new memories thereby increasing capacity for learning or improve academic performance (Hayes, 1989). Research suggests that exercise may stimulate the growth of new brain cells that enhance memory and learning which are two functions hampered by depression, it prevents depressive illness and may reduce risk of cognitive decline. It has beneficial effect on symptoms of depression and anxiety in people who suffer from mental illness, and improve the ability to perform activities of daily living (USDHHS, 2002). United State Preventive Service Task force (USPSTF, 1996) stressed that regular physical activity reduces morbidity and mortality from mental health disorders. Mental health disorders pose a significant public health burden in the United States and they are a major cause of hospitalization and disability. Mental health disorder cost approximately \$ 148 billion per year (USDHHS, 1996). Potentially, if increasing physical activity levels in Americans could substantially reduce medical expenditures for mental health conditions, it will as well ameliorate medical expenditures in Nigerians. Mind and body exercises like yoga, Pilates and tai-chi

provide variety and fun thereby reducing depression and stress.

3. **Social Fitness** is an individual's ability to get along with other people. Social benefits accruing form participating in physical activities are many and varied. Sport is a means by which participants can interact in positive, self, enhancing manners. Desirable attitude, values and behaviours can be fostered in positive sporting environments. Participating in physical activities provide opportunities to develop cooperative skills pro-social behaviours, and supportive relationships (Murray, 2002). Research has shown that students who participate in interscholastic sports are less likely to be regular and heavy smokers or use drugs, and are likely to stay in school and have good conduct and high academic achievement (Zill, Nord & Loomis, 1993; Escobedo, Marcus, Holtzman & Giovino, 1993). Sports and physical activity programmes can introduce young people to skills such as teamwork, self-discipline, sportsmanship, leadership, and socialization. Murray (2002) emphasized that boys and girls who participate in sports activities frequently have higher academic standing than those who do not. Girls in particular tend to have higher levels of self-esteem than non

participants, and are less likely to be involved with drugs and unwanted pregnancies. The deduction from above implies that lack of participation in physical activity, exercise or sports may contribute to making young people more vulnerable to gangs, drugs, or violence.

4. **Physical Fitness** is only an aspect of total fitness. It is the capacity of an individual to carry out reasonably vigorous physical activities; ability to bear up, to last, to withstand pressure and to sustain under difficult conditions where unfit person would give up (Nachemason, 1990). Physical fitness is defined in two ways, functional and organic or bodily fitness. **Functional physical fitness** is the capacity of an individual to perform given physical task in daily life without undue fatigue and has an ample reserve energy to enjoy leisure-time activities and meet unforeseen emergencies (Nwaegbu, 1978). This type of fitness is specific to ones vocation. There is fitness for a javelin thrower, distance runner, a carpenter, a farmer and so on.

Organic or bodily physical fitness is the second physical fitness. It is the fitness of the body without reference to one's daily tasks or vocation. Organic physical fitness is divided into two components

namely skill related components and health related components (Uzoalor & Okafor, 1987). Skill related components are those necessary for performing physical work. They include agility, balance, co-ordination, speed and muscular power.

a. **Agility** is the ability to move quickly and effectively in different directions with good body control. It is important in activities involving dodging, quick starts, step and changes in direction. An agile person is one who can use the body effectively as described above.

b. **Speed** is the ability to perform rapidly successive movement over a short period of time in a single direction. The speed of a person is related to both his or her reaction time and movement time. Reaction time is the length of time it takes to move after being stimulated to do so like in races.

c. **Balance** is the ability to maintain the body equilibrium when one's base or support and centre of gravity are altered. Balance is divided into categories: Static (Stationary) and dynamic (moving) balance. Dynamic balance involves trying to maintain balance while walking on beams. Static balance involves trying to maintain balance while the centre of gravity

remains stationary like standing on one leg (Nwaegbu, 1978).

d. **Co-Ordination** is the Harmonious manipulation of the body parts efficiently and effectively. It is termed neuro-muscular co-ordination. A co-ordinated person is able to put together a series of movement into a flowing and rhythmical pattern like in dancing. Different activities and bodily movement require different co-ordination.

e. **Muscular power** is the force that one is capable of exerting to perform one maximum explosive effort in the shortest time with the greatest efficiency. It shows a person's ability to propel his own body or some other object rapidly through space. Power is useful in events like jumping, throwing and kicking. Health related components of organic fitness are needed for good health. They include endurance, strength, flexibility and body composition.

i. **Muscular strength** is the amount of force which can be exerted by a particular muscle or a group of muscle in one single maximum effort against a resistance (Mba, 2005). Strength is therefore specific to the muscles exercised. The key to making ones muscles stronger is working them against resistance, like weights or gravity. If one wants to gain muscular strength, exercises such as lifting weights or

rapidly taking the stairs are required. A person who possesses a satisfactory muscular strength exhibits it in pushing or pulling heavy loads or lifting heavy weights (Nwaegbu, 1978 & USDHHS, 1996). According to USDHHS strength training will help in burning extra calories, build strong muscles, bones, joints and improve physical functioning. Experts recommend strength training 2 to 3 times each week, with one full day of rest between work outs to allow muscles to recover.

ii. **Muscular Flexibility** is the range of motion around a particular joint. The ability to bend, twist, or turn without breaking such as those needed for swimming, diving and tumbling is a clear indication of flexibility. Good flexibility in the joints can help prevent injuries through all stages of life. Activities that lengthen the muscles such as swimming, trunk flexion and trunk extension help to develop flexible body (USDHHS, 1996 & Nwaegbu 1978).

iii. **Endurance** is the ability to complete, to participate and to prolong certain efforts with a minimum of fatigue or simply the ability to withstand fatigue hardship and stress (Mba, 2005). There are two kinds of endurance: muscular and cardiovascular. Muscular endurance is the ability of the muscle to continue to perform (contract) against a moderate

resistance without fatigue. To improve muscle endurance, one needs to engage in cardio-respiratory activities like walking, jogging, bicycling, dancing, pull-ups and press-up (USDHHS, 1996 & Nwaegbu, 1978).

Cardio-respiratory endurance (aerobic fitness) is the ability of the body's circulatory and respiratory system to supply fuel and oxygen during sustained physical activity (USDHHS, 1996). According to Nwaegbu (1978) it involves the whole body through the heart, the blood vessels and the lungs. Following from the above, when a person contracts series of muscle groups over a period of time long enough to put strain on circulatory and respiratory system without drop in efficiency that individual is said to have cardio-respiratory endurance. To improve cardio-respiratory endurance, one need to engage in activities that will keep the heart rate elevated at a safe level for a sustained length of time like walking, swimming, bicycling and long distance running. In these activities, the system is taxed to supply extra oxygen needed to continue the activity. Aerobic exercise makes one breath hard and increases the heart rate.

Body composition: This refers to the relative amount of muscle, fat, bone, and other vital parts of the body. A

person's total body weight (what you see on the bathroom scale) may not change over time. The bathroom scale does not assess how much of body weight is fat and how much is lean mass; that is muscle, bone, tendons and ligaments (USDHHS, 1996). Body composition is important to consider for health and management of body weight. Weight gain results from a combination of excess calories consumption and inadequate physical activity. Wright (2000) observed that large weight gains and obesity are associated with increase risk of diseases like coronary heart disease, type-2 diabetes and cancer. The average man needs 3,000 calories a day while the average woman needs slightly less - 2,200 calories a day. Two thirds of this energy goes into maintaining the heart beat, keeping the lungs breathing and the rest of body metabolism. The remaining one third is used for growth and movement. Excess supply of these calories above daily need is converted to fat and stored in the body tissues and organs. Fat that accumulates on the inner wall of the blood vessels are cholesterol, which cause heart disease. Fat exposes one to illness like heart disease, high blood pressure, diabetes, cancer and reduces the ability of the heart to perform well (Wright, 2000 & Lewis, 1978).

CONCLUSION
In order to maintain a healthy body weight, there must be a balance between calories consumed and calories expended through metabolic and physical activity. Physical activities may account for as much as 15 to 40 percent of the calories one burns each day. Vigorous exercise uses calories at a higher rate (USDHHS, 2002). Physical activity therefore, may help control weight by using excess calories that would be stored as fat. According to USDHHS (2002) a 140 pound person can burn 375 calories in 30 minutes of moderate jogging. The same person can also burn 105 calories by vacuuming or raking leaves in 30 minutes. They emphasized that a weight gain of 11 to 48 pounds increases a person's risk for developing type 2 diabetes times two whereas gain of 44 pounds or more increases the risk times four of normal or lean body weight individual.

Recent research studies have shown that a gain of 10 to 20 pound resulted in an increased risk of coronary heart disease. In these studies, weight increases of 22 pounds in men and 44 pounds in women resulted in an increased coronary heart disease risk of 1.75 and 2.65 respectively (USDHHS, 2002). To lose weight, experts recommend 60 minutes of moderate to vigorous intensity

physical activity and to maintain weight after weight loss, 60 to 90 minutes of daily moderate intensity physical activity. Over weight and obesity stimulate cancer development. Most cancers are partly caused by degeneration of the body with age, until the influence of or other carcinogens overcomes its weakened defences. High cholesterol and triglycerides are associated not only with heart disease but also with general degeneration of the body that can weaken the system so that cancer can dominate. The accumulation or hoarding of long term body-fat is one way of weakening the body's cellular matrix and permitting carcinogens to gain malignant foothold (Weider & Colgen, 1971).

According to Weider and Colgen (1971) these degenerative changes which weakens the body making it prey to cancer include loss of strength, loss of bone mass, loss of muscle mass, degeneration of glucose tolerance, loss of cardiovascular fitness, decline of hormone levels, decline of the immune system. Weider and Colgen pointed out that American cancer society in a massive 20 study of over one million Americans in 25 different states discovered that men who are more than 40% over weight have higher rates of

cancer of the prostate, colon and rectum, while women, who are more than 40% over weight have higher rates of endometrial cancer, like cancer of ovaries, uterus, gall-bladder and breast. From the literature reviewed so far, there is no longer any doubt that being over fat causes cancer. Being very slim (lean) or having very low body fat may actively prevent cancer. Bodybuilding activities like weight training which develops large muscle mass is cancer preventive.

In addition to the health problems discussed so far, over weight and obese individuals also may suffer from social stigmatization, discrimination, and poor body image. Over weight children and adolescents are more likely to become over weight and obese adults. If the prevalence of over weight and obesity increases in children and adolescents, type 2 diabetes, high blood lipids and hypertension as well as early maturation and orthopedic problems will occur with increased frequency. A common consequence of childhood over weight is psychosocial - specifically discrimination.

CONCLUSION

It has been observed that physical inactivity and sedentary lifestyle tend to degenerate the body, making it prone to diseases. There is a great need for people of all ages to engage in a more active lifestyle in Nigeria. The most important change is at the individual and family level. Each person must understand the value of physical activity for health and well-being and commit to a lifestyle that is truly active. Becoming physically active is a step in the right direction because it will help one to maintain a healthy weight and improve one's health.

RECOMMENDATION

Government and Non-governmental Organisations should create awareness through seminars and workshops both at rural and urban areas on benefits of fitness activities. Individuals should be encouraged to engage in activities like:

1. Aerobic exercises like brisk walking, jogging, bicycling, swimming, and dancing.
2. Body building exercises like lifting weights, doing push-ups and abdominal crunches.
3. Participating in vigorous sports activities like tennis, basket ball, soccer and so on.

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