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Editorial

This eight edition of the Journal of Nigeria Association of Sports Science and Medicine (JONASSM) is a special Edition. The Nigeria Association of Sports Science and Medicine (NASSM) from time to time comes out with topical issues of interest to the Association, the Nation and the World. The topic of interest in this issue is **HIV/AIDS**. This is a very hot issue for all and the association in its characteristic nature solicited for articles and research on this topic and how sports science and medicine can be used effectively to control and manage the pandemic of HIV/AIDS.

The editorial Board of JONASSM wishes to solicit through this medium, well researched studies and articles for future publications. I would like to thank the reviewers of the articles published here for their time. The Editorial Board appreciates them. To the contributors, the board says thank you and please continue to research and to send qualitative papers to JONASSM.

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The *Journal of Nigeria Association of Sports Science and Medicine* is the official publication of the Nigeria Association of Sports Science and Medicine. A blind review process is rigorously followed. Normally, authors submitting manuscripts are expected to be currently registered members of NASSM. Manuscripts from non-members are also considered by the editor for review.

The following guidelines are to assist authors in preparing manuscripts to be submitted and considered through review and editorial processes.

Language

- Submit all manuscripts in English

Topic

- Subject matter from all areas of health, physical education, recreation, sport, and dance, interpreted in the broadest manner possible.
- Report of research studies or project should include a section on practical implications and applications of the study or project.

Manuscript Preparation

- Use APA format being sure it is employed consistently throughout the manuscripts.
- All manuscripts must be computer generated, double spaced, with 1" margins, and pages numbered. Incorrectly prepared manuscripts will be returned without review to corresponding authors.
- Prepare a title page containing each author's name, position, affiliation, address and telephone numbers, and e-mail address. This is the only page where identifying information is to appear.
- For multiple authorship, identify which author should receive correspondence from the editor.
- Follow the title page with the abstract, and then the full content of the manuscript. These pages are to contain no information identifying the author(s).
- Try to make the manuscript no longer than 8 to 12 double-spaced pages - these make the best and most appropriate length articles.
- Include an abstract of between 100 and 200 words. The abstract should be a succinct summary of the information presented in the article.
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Submission Process

- Submit relevant pictures to give greater impact to your manuscript - black and white prints are preferred, although clear color prints, slides, and digital pictures can be used.
- Submit three computer generated double-spaced copies of your manuscript and abstract. Include one copy of the manuscript and abstract on a virus-free floppy computer diskette in MS-Word Format. If possible, also send all material in the form of an e-mail attachment (MS-Word Format).
- Corresponding author is notified of status of manuscript as soon as recommendations are received from reviewers. This process may take longer than might be expected since reviewers are located throughout the world.
- Order of manuscript acceptance and publication is not the same since many factors must be considered for each issue.
- Lead author receives two copies of the issue in which his/her article is published.
- Send manuscripts and direct any correspondence to the attention of the Managing editor. Prof. V.C. Igbanugo
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(Adapted from ICHPER.SD Journal)

Prof. V.C. Igbanugo

Editor

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Exercise As Psychogenic Aid for Enhancing Cardiovascular Health

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Abstract

This study examined the application of psychogenic aids in enhancing cardiovascular health. It discussed the importance of exercise and the benefits on cardiovascular health. The physiological benefits of exercise were highlighted, how much exercise is enough in promoting health and disease prevention. The psychological benefits of exercise, which are often overlooked, were identified. It also justified how exercise brings about psychological changes in participants. Some psychological benefits of exercise were found to include enhanced moods, improved self-confidence and body image and increased mental alertness among others. The paper concluded by highlighting how to begin so as to become more physically active, the best type of exercise to engage in and how to get started.

Introduction

Cardiovascular disease is a serious health threat. Both male and female gender are equally at risk. One of the safest and most effective ways to reduce the risk and improve cardiovascular fitness is through exercise. Akinkugbe, (2001) noted that the greatest killer disease among ages fifteen and above in Nigeria is heart disease. He emphasized that the focus of the Nigerian Heart Foundation was to promote the prevention of cardiovascular disease, focus on known risk factors such as smoking, high blood pressure, stroke, cholesterol and physical inactivity and to improve the quality of life. Realizing the importance of exercise, the foundation on annual basis organize annual walk and Golf tournament to emphasize the importance of physical exercise. He noted that many Nigerians don't exercise regularly and inactivity nearly doubles a person's risk for heart disease, ranking it among the leading risk factors.

The American Heart Association reports that regular physical activity is as important for heart health as the other three major lifestyle factors: quitting smoking, lowering blood cholesterol, and controlling blood pressure. Numerous scientific reports have examined the relationships between physical activity, physical fitness, and cardiovascular health. Expert panels, convened by organizations such as the Centers for Disease Control and Prevention (CDC), the American College of Sports Medicine (ACSM), and the American Heart Association (AHA), along with the 1996 US Surgeon General's Report on Physical Activity and Health, reinforced scientific evidence linking regular physical activity to various measures of cardiovascular health. The prevailing view

in these reports is that more active or fit individuals tend to develop less coronary heart disease (CHD) than their sedentary counterparts. If CHD develops in active or fit individuals, it occurs at a later age and tends to be less severe.

As many as 250 000 deaths per year in the United States are attributable to a lack of regular physical activity. In addition, studies that followed large groups of individuals for many years have documented the protective effects of physical activity for a number of non-cardiovascular chronic diseases, such as non-insulin-dependent diabetes, hypertension, osteoporosis, and colon cancer. In contrast, we see a higher rate of cardiovascular events and a higher death rate in those individuals with low levels of physical fitness. Even midlife increases in physical activity, through change in occupation or recreational activities, are associated with a decrease in mortality.

A search through literature showed that it is both psychologically and physiologically healthy to incorporate a daily regimen of exercise into our lifestyle. The psychological benefits of aerobic exercise (i.e. running, cycling, swimming) have been known to include increased blood flow to the heart, lowered resting heart rate, increased capacity of the lungs to deliver large quantities of oxygenated blood to all parts of the body, lowered blood pressure, and lowered blood lactate levels. Sachs, (1984) citing Greist, Klein, Eischeas, Faris, Gurman and Morgan (1978) identified a number of factors that may help explain why vigorous physical activity (particularly running) is associated with the reduction of depression. These factors include mastery, patience, and capacity for change, generalization, distraction, positive habit, symptom relief, consciousness alteration, and biochemical changes that accompany aerobic activities. These factors (singly or in combination) most likely account for the enhanced psychological well-being we see resulting from vigorous physical activities.

Cardiovascular Health

Regular aerobic physical activity reduces the risk of developing or dying from cardiovascular disease. Aerobic exercise improves cardiovascular health and helps control several disorders such as high blood pressure and cholesterol that increase your risk of heart attack and stroke. Activities such as walking, cycling, and swimming "stress" the muscles, bones, and joints (the physiological systems that produces movement), the heart, blood vessels and lungs, and the other systems

T.A. Omaye & B.S. Adebayo

responsible for oxygen delivery and energy production. These systems respond to the stress of exercise by becoming stronger and healthier.

With aerobic exercise, individuals with high blood pressure often see some reduction in both systolic and diastolic blood pressure. Blood sugar regulation improves, thus decreasing risk for Type II Diabetes or improving blood sugar control for people already diagnosed with diabetes. Exercise helps raise healthy HDL cholesterol, and helps lower blood triglycerides.

Mental Well Being

Various studies support the connection between regular physical activity and psychosocial well-being. Exercise helps prevent and treat depression, improves perceptions of self-efficiency and may even improve memory and problem-solving ability. Exercise helps relieve stress and improves quality of life.

Many of the health problems that become more common with age, such as arthritis, osteoporosis, insomnia, and diabetes, respond favorably to exercise. It has been said that exercise will certainly add life to your years.

What Are the Benefits of Exercise?

A sedentary lifestyle is one of the 5 major risk factors (along with high blood pressure, abnormal values for blood lipids, smoking, and obesity) for cardiovascular disease, as outlined by the AHA. Evidence from many scientific studies shows that reducing these risk factors decreases the chance of having a heart attack or experiencing another cardiac event, such as a stroke, and reduces the possibility of needing a coronary revascularization procedure (bypass surgery or coronary angioplasty). Regular exercise has a favorable effect on many of the established risk factors for cardiovascular disease. For example, exercise promotes weight reduction and can help reduce blood pressure. Exercise can reduce "bad" cholesterol levels in the blood (the low-density lipoprotein [LDL] level), as well as total cholesterol, and can raise the "good" cholesterol (the high-density lipoprotein level [HDL]). In diabetic patients, regular activity favorably affects the body's ability to use insulin to control glucose levels in the blood. Although the effect of an exercise program on any single risk factor may generally be small, the effect of continued, moderate exercise on overall cardiovascular risk, when combined with other lifestyle modifications (such as proper nutrition, smoking cessation, and medication use), can be dramatic.

Benefits of Regular Exercise on Cardiovascular Risk Factors

- Increase in exercise tolerance
- Reduction in body weight
- Reduction in blood pressure

- Reduction in bad (LDL and total) cholesterol
- Increase in good (HDL) cholesterol
- Increase in insulin sensitivity

There are a number of physiological benefits of exercise; 2 examples are improvements in muscular function and strength and improvement in the body's ability to take in and use oxygen (maximal oxygen consumption or aerobic capacity). As one's ability to transport and use oxygen improves, regular daily activities can be performed with less fatigue. This is particularly important for patients with cardiovascular disease, whose exercise capacity is typically lower than that of healthy individuals. There is also evidence that exercise training improves the capacity of the blood vessels to dilate in response to exercise or hormones, consistent with better vascular wall function and an improved ability to provide oxygen to the muscles during exercise. Studies measuring muscular strength and flexibility before and after exercise programs suggest that there are improvements in bone health and ability to perform daily activities, as well as a lower likelihood of developing back pain and of disability, particularly in older age groups.

Patients with newly diagnosed heart disease who participate in an exercise program report an earlier return to work and improvements in other measures of quality of life, such as more self-confidence, lower stress, and less anxiety. Importantly, by combining controlled studies, researchers have found that for heart attack patients who participated in a formal exercise program, the death rate is reduced by 20% to 25%. This is strong evidence in support of physical activity for patients with heart disease. Although the benefits of exercise are unquestionable, it should be noted that exercise programs alone for patients with heart disease have not convincingly shown improvement in the heart's pumping ability or the diameter of the coronary vessels that supply oxygen to the heart muscle.

How Much Exercise Is Enough

Exercise is important as a key component to health promotion and disease prevention. Modest activity is defined as any activity that is similar in intensity to brisk walking at a rate of about 3 to 4 miles per hour. These activities can include any other form of occupational or recreational activity that is dynamic in nature and of similar intensity, such as cycling, yard work, and swimming. This amount of exercise equates to approximately five to seven 30-minute sessions per week at intensity equivalent to 3 to 6 METs (multiples of the resting metabolic rate) or approximately 600 to 1200 calories expended per week.

It has been shown that repeated intermittent or shorter bouts of activity (such as 10 minutes) that include occupational and recreational activity or the tasks of daily living have similar cardiovascular and other health benefits if performed at the moderate intensity level with an accumulated duration of at least 30 minutes per day.

People who already meet these standards will receive additional benefits from more vigorous activity.

Many of the studies documenting the benefits of exercise typically use programs consisting of 30 to 60 minutes of continuous exercise 3 days per week at an intensity corresponding to 60% to 75% of the individual's heart rate reserve. It is not usually necessary, however, for healthy adults to measure heart rate diligently because substantial health benefits can occur through modest levels of daily activity, irrespective of the specific exercise intensity. In fact, researchers estimate that as much as a 30% to 40% reduction in cardiovascular events is possible if most Americans were simply to meet the government recommendations for activity.

Physical Fitness and Mortality

One need not be a marathon runner or an elite athlete to derive significant benefits from physical activity. One reason for this is that the greatest gains in terms of mortality are achieved when an individual goes from being sedentary to becoming moderately active. Studies show that less is gained when an individual goes from being moderately active to very active. In a study performed among US veterans, subjects were classified into 5 categories according to fitness level. The largest gains in terms of mortality were achieved between the lowest fitness group and the next lowest fitness group. The researchers studied 6213 men over a 6-year period and compared the risks of death (after allowing for age adjustment) by gradients of physical fitness. Healthy adults who are the least fit have a mortality risk that is 4.5 times that of the most fit. Surprisingly, an individual's fitness level was a more important predictor of death than established risk factors such as smoking, high blood pressure, high cholesterol, and diabetes. This study, along with others, underscores the fact that fitness and daily activity levels have a strong influence on the incidence of heart disease and overall mortality.

The Psychological Benefits of Exercise

The psychological benefits of exercise are often overlooked. Today's society greatly focuses on the physical benefits of exercise, such as weight loss and toned muscles. Although these are remarkable benefits, the psychological benefits can be just as, if not more significant than the physical benefits dependent on your needs and goals.

Psychological well-being may integrate a number of different factors, however, it can also be examined more narrowly, and in terms of the well-being a person feels during and after exercise. Sachs, (1984) citing Morgan, (1973) has noted a "feel better phenomenon", which is a response that participants in vigorous activities consistently report after exercise. Exercise engaged in solely for physical benefits has been shown to have a positive effect on psychological state of individuals in a

number of diverse settings. For example, physical strenuous exercise is effective in improving psychological functioning of individuals experiencing a wide range of problems (Folkins & Sime, 1981; Sachs & Sachs, 1981). Research suggests that physical psychological changes occur, these include improved mood, self-esteem, and work performance as well as increased cardiovascular endurance and improvements in muscle tone, digestion, fat loss and blood volume (Folkins & Sime 1981).

Running therapies provide additional health benefits such as increased respiratory efficiency and cardiovascular endurance as well as improvement in muscle tone, digestion, blood volume, and fat loss (Pollock, Wilmore, & Fox, 1978).

How Does Exercise Cause Psychological Changes

Many theories about the psychological benefits of exercise have surfaced from exercise physiology and sports psychology. One common area of study is neurochemistry. Scientists believe that when exercising, chemicals called endorphins are produced in the brain and released into the body. The word endorphin is abbreviated from the phrase endogenous morphine, which means morphine produced naturally by the body (www.biotech-usa.com). Endorphins are thought to relieve stress and pain naturally, giving one an euphoric and invigorating feeling. This is also known as runner's high. Other theories focus more on the indirect effects of exercise. A popular opinion is that exercise may create a distraction and provide an outlet from everyday sources of stress, therefore positively enhancing one's mental condition. Also, another thought is that muscle tension tends to be reduced after a good exercise session and this can promote a feeling of relaxation and calmness.

Research involving hypnosis and sport and exercise psychology has been carried out almost exclusively with laboratory experimentation in which attempts have been made to elucidate the effectiveness of hypnotic suggestion on the transcendence of baseline measures of physical activity (Morgan, 1996).

What are the Psychological benefits of exercise?

There are many psychological benefits of physical activity. The most common are listed below:

Decreased daily tension and chronic stress: Exercise is one of the best ways to decrease stress. As stated above, exercise can help relieve stress by the release of endorphins and/or by creating an outlet from daily tension and anxiety. With less stress, many individuals will begin to feel more energized and alive.

Improved self-confidence and body image: Today, many people are unhappy with their physical appearance. By exercising regularly, most people will

begin to see positive physical change. When individuals start seeing these results, they tend to be proud of their success and feel good about who they are. Many times this enhances body image perception and self-confidence.

Enhanced moods: Exercise makes most people feel good and when people feel good, their moods seem to elevate. Whether this is due to the release of endorphins or providing a distraction from daily stress, many studies show that regular exercisers have a more positive outlook and are happier overall in comparison to the inactive population.

Alleviate depression: Studies show that regular exercise can greatly alleviate and in some cases prevent the symptoms of depression. The exact physiological reason is unknown, but scientists believe that enhancing body image, elevating moods and improving one's health and physical appearance can all help boost self-confidence and create a feeling of success, therefore alleviating depression symptoms.

Increased mental alertness: Stress and fatigue negatively affect concentration, comprehension and memory. Since exercise is a great way to alleviate stress and increase energy levels, a regular exercise routine will enhance mental alertness and can improve overall mental health.

Feeling great overall: One of the best psychological benefits of exercise is just feeling great overall. One could argue that this is a physical benefit of exercise, however the psychological benefits greatly contribute to this overall great feeling. The combination of increased self-confidence, decreased stress, better moods, less depression and increased mental health in addition to all of the physical benefits should make anyone feel great. Regardless of why or how the body psychologically adapts to exercise, the main point is that exercise not only improves physical health, but also mental health. Uniting the physical and psychological benefits of exercise will definitely help enhance the quality of life.

What Are the Risks of Exercise?

During exercise, there is a transient increase in the risk of having a cardiac-related complication (for example, a heart attack or serious heart rhythm disorder). However, this risk is extremely small. For adults without existing heart disease, the risk of a cardiac event or complication ranges between 1 in 400 000–800 000 hours of exercise. For patients with existing heart disease, an event can occur an average of once in 62 000 hours. Importantly, the risk of a cardiac event is significantly lower among regular exercisers. Evidence suggests that a sedentary person's risk is nearly 50 times higher than the risk for a person who exercises about 5 times per week. Stated simply, individuals who exercise regularly are much less likely to experience a cardiac event during exercise.

attacks (approximately 90%) occur in the resting state, not during physical activity.

Exercise is therefore considered to be extremely safe. Nevertheless, it is a good idea to be aware of the warning signs or symptoms that may indicate a problem: chest discomfort (pain or pressure in the chest, jaw, or neck, possibly radiating into the shoulder, arm, or back), unusual shortness of breath, dizziness or light-headedness, and heart rhythm abnormalities (sensations of heart beat skipping, palpitations, or thumping). If one of these symptoms occurs, medical attention should be sought immediately.

How Should You Begin if You Want to Become More Physically Active

First, if you currently have heart disease or are over 45 years of age and have 2 or more risk factors (immediate family member with heart disease before age 55, cigarette smoking, high blood pressure, abnormal cholesterol levels, diabetes, sedentary lifestyle, or obesity), you should consult your physician before starting any type of exercise. Clearly, most people can derive significant benefits from integrating a half hour of moderate activity into their day. If you know you simply cannot or will not set aside a half hour of activity on a given day, then try to work more activities into the day by taking the stairs rather than the elevator, or try walking rather than driving a short distance to the store. Try to work several shorter periods of activity, such as 10 minutes, into your schedule. The most important thing is to get started. There is mounting evidence in the scientific literature that physical activity and physical fitness have a powerful influence on a host of chronic diseases, a fact underscored by the recent Surgeon General's report on Physical Activity and Health. Reducing the risk of heart disease through greater physical activity could have an enormous impact on health.

The Best Type of Exercise

Regular aerobic activity (also called endurance exercise) is best. Studies have shown that as little as 30 minutes a day of moderately vigorous aerobic activity, such as walking, cycling, or swimming significantly reduces a person's risk of heart disease. Best of all, exercise need not be extremely vigorous to be beneficial to your health.

Getting Started

To make your workouts as low-risk as possible, use the following guidelines:

1. Ask your doctor if you need an exercise stress test, or whether you should follow any special exercise guidelines.
2. Exercise regularly. Exercise is much safer for people who exercise routinely. To maximize the benefits of any aerobic exercise, you must sustain an activity for at least 20 minutes at each session. If you are just

beginning exercise, start with a 10-minute workout and gradually add two minutes a week until you reach your goal.

3. A mild to moderate exercise intensity is safer than a more vigorous workout. A safe intensity of exercise can be obtained by advancing your heart rate to a certain point called the "target heart rate zone". Calculate your maximum heart rate by subtracting your age from 220. Your target heart rate is 60-75% of your maximum heart rate. This formula cannot be utilized if you are taking certain cardiac medications. Consult your health care provider for your target heart rate parameters. In order to determine your heart rate, you must take your pulse. Taking your pulse: Using your middle and index fingers, locate your pulse on the thumb side of your wrist. Press lightly. Count your pulse for 10 seconds starting with zero. Never stop your activity completely to take your pulse. Keep moving at a slower pace.
4. Warm-up and cool-down. A slow but steady building of excessive intensity during a warm up allows the cardiovascular system to adjust to the increasing demands of exercise, and a good cool down helps it adjust back to resting level.
5. Included in your exercise routine should be performing strength training exercises 2-3 times a week for a minimum of 20 minutes. Muscles and joints become stronger, daily activities feel easier and balance improves. In addition, many experts believe that strength training can help women effectively manage osteoarthritis, osteoporosis, and preserve muscle tissue.
Muscle tissue is more metabolically active than fat tissue (i.e., it will burn more calories). By maintaining a higher amount of muscle tissue, women will maintain higher metabolic rates and maintain their optimal body weights.
6. Listen to your body and heed warning signs of cardiovascular disease, such as chest pain or pressure, abnormal heart rhythms or dizziness. While these symptoms are often caused by something other than heart disease, it is best to be safe and check them out.

7. Exercise for the right reasons: To be healthy and feel good. Find activities that are convenient and fun and make them a regular part of your lifestyle.

Conclusion

Based on the renewed literature, it is both psychologically and physiologically healthy to incorporate a daily regimen of exercise into our lifestyle. It is pertinent that Nigerians avail themselves of these benefits by taking part in regular exercise, which in turn can help in enhancing cardiovascular health. The cost of exercise is cheaper and safer than waiting until cardiovascular health deteriorates in which case, the cost of treatment may no be affordable. On the final note, regular exercise enhances general well being, many of the health problems that become more common with age, such as arthritis, osteoporosis, insomnia, and diabetes, respond favourably to exercise.

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