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Physical activity, Nutrition and wellbeing; A narrative review

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Insufficient physical activity and poor nutrition is a key risk factor for non-communicable diseases (NCDs) such as cardiovascular diseases, cancer and diabetes This paper discuses physical activity, nutrition and wellbeing. It is a position paper in which importance of physical activity and nutrition to achieving wellbeing was discussed extensively from different researcher's point of view and specifications for different age group were outlined. It was therefore concluded that Good nutrition; an adequate, well balanced diet combined with regular physical activity; is a cornerstone of good health and wellbeing. It was therefore recommended that all adults should avoid inactivity and engage in physical activities and Consumption of a healthy diet throughout the life course helps prevent malnutrition and non communicable diseases.

Key words: Physical activity, Nutrition, health, wellbeing

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INTRODUCTION

Inadequate physical activity and a sedentary lifestyle are important causes of many of the major diseases of developed societies, including coronary artery disease, stroke, hypertension, diabetes, obesity, osteoporosis, and arthritis. There has been an explosion of information over the past two decades on the health benefits of exercise. In addition, exercise and nutrition are closely linked, with each modifying the effects of the other.

Regular physical activity is one of the most important things you can do for your health (CDC, 2018) which includes biking, Walking, jogging, running, swimming etc. Inactivity of any form is not good for the body and overall health and this is affirmed by WHO (2018) that Insufficient physical activity is one of the leading risk factors for death worldwide and it is a key risk factor for non-communicable diseases such as cardiovascular diseases; like cancer and diabetes. Also, globally, 1 in 4 adults is not active enough; furthermore, more than 80% of the world's adolescent population is insufficiently physically active.

Consuming a healthy diet throughout the life course helps prevent malnutrition in all its forms as well as a range of noncommunicable diseases and conditions (WHO, 2015). But sadly, the increased production of processed food, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars or salt/sodium, and many do not eat enough fruit, vegetables and dietary fibre such as whole grains.

Non-communicable diseases kill 41 million people each year, equivalent to 71% of all deaths globally. Each year, 15 million people die from a NCD between the ages of 30 and 69 years; over 85% of these "premature" deaths occur in low- and middle-income countries. Continuation

to the alarming statistic is that Tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets (poor nutrition) all increase the risk of dying from a NCD (WHO, 2018). Achieving and maintaining health is an ongoing process, shaped by both the evolution of health care knowledge and practices as well as personal strategies and organized interventions for staying healthy. The importance of Physical activity and Nutrition cannot be underestimated in the overall health of an individual; hence this paper did a detailed review on the importance of Physical activities and nutrition on improving the health of an individual.

METHODOLOGY

This is a theoretical research on the importance of physical activities and nutrition to achieving wellbeing. As such, the method used was a systematic review process to search for different reputable journals on the importance of physical activities and nutrition to achieving wellbeing. Articles from international health agencies such as world health organization were also consulted.

Physical activity and Health

WHO (2018) defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure – which includes activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. The term "physical activity" should not be confused with "exercise", which is a subcategory or type of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness. Beyond exercise, any other physical activity that is done during leisure time, for transport to get to and from places, or as part of a person's work, has a health benefit. Further, both moderate- and vigorous-intensity physical activity improve health (WHO, 2018)

Physical exercise is important for maintaining physical fitness and can contribute to maintaining a healthy weight, regulating digestive health, building and maintaining healthy bone density, muscle strength, and joint mobility, promoting physiological well- being, reducing surgical risks, and strengthening the immune system (Gremeaux et al, 2012). Some studies indicate that exercise may increase life expectancy and the overall quality of life (Gremeaux et al, 2012). Been inactive is not good for the body and health, the importance of been active includes the following;

Fitness

Individuals can increase their level of fitness following increases in physical activity levels (Dobbins et al, 2013). Studies have shown that exercising in middle age leads to better physical ability later in life (Medicine online, 2017). Early motor skills and development have also shown to be related to physical activity and performance later in life (Medicine online, 2017). Children who have more proficient motor skills early on are more inclined to being physically active, and thus tend to perform well in sports and have better fitness levels (Medicine online, 2017).

Cardiovascular system

The beneficial effect of exercise on the cardiovascular system is well documented. There is a direct correlation between physical inactivity and cardiovascular mortality, and physical inactivity is an independent risk factor for the development of heart attack and stroke. Low levels of physical exercise increase the risk of cardiovascular diseases mortality (American Heart Association, 2017). Furthermore, Children who participate in physical exercise experience greater loss of body fat and increased cardiovascular fitness (Lumeng and Julie 2006). Studies have shown that academic stress in youth increases the risk of cardiovascular disease in later years; however, these risks can be greatly reduced with regular physical exercise (Ahaneku et al, 2000).

Strengthening of Bones and Muscles

As one age, it is important to protect the bones, joints and muscles (CDC, 2018). Not only do they support your body and help you move, but keeping bones, joints and muscles healthy can help ensure that you are able to do your daily activities and be physically active (CDC, 2018). Research shows that doing aerobic, muscle-strengthening and bone-strengthening physical activity of at least a moderately-intense level can slow the loss of bone density that comes with age (CDC, 2018).

Cancer prevention

Physical activity is helpful in the prevention of some types of cancer. This is supported by a systematic review which evaluated 45 studies that examined the relationship between physical activity and cancer survivorship. According to the study results "There was consistent evidence from 27 observational studies that physical activity is associated with reduced all-cause, breast cancer–specific, and colon cancer–specific mortality" (Ballard-Barbash, 2012).

Cancer cachexia

Cancer cachexia means the systematic wasting of muscle tissue, with or without loss of fat mass that accompanies cancer disease. Physical exercise is becoming a widely accepted non-pharmacological intervention for the prevention and attenuation of cancer cachexia (Lira, Neto and Seelaender 2014).

Neurobiological

The neurobiological effects of physical exercise are numerous and involve a wide range of interrelated effects on brain structure, brain function, and cognition (Erickson, Hillman, Kramer, 2015; Paillard, Rolland, de Souto and Barreto 2015). A large body of research in humans has demonstrated that consistent aerobic exercise (e.g., 30 minutes every day) induces persistent improvements in certain cognitive functions, healthy alterations in gene expression in the brain, and beneficial forms of neuroplasticity and behavioral plasticity (Erickson, Hillman, Kramer, 2015; Paillard, Rolland, de Souto and Barreto 2015). some of these long-term effects include: increased neuron growth, increased neurological activity, improved stress coping, enhanced cognitive control of behavior, improved declarative, spatial, and working memory, and structural and functional improvements in brain structures and pathways associated with cognitive control and memory.

Longevity

Science shows that physical activity can reduce your risk of dying early from the leading causes of death, like heart disease and some cancers. People who are physically active for about 7 hours a week have a 40 percent lower risk of dying early than those who are active for less than 30 minutes a week. Also, the intensity of the exercise or activity does not matter. You can put yourself at lower risk of dying early by doing at least 150 minutes a week of moderate-intensity aerobic activity (CDC, 2018)

Depression

A number of medical reviews have indicated that exercise has a marked and persistent antidepressant effect in humans, (Cooney et al, 2013; Brené et al 2007) an effect believed to be mediated through enhanced Brain-Derived Neurotrophic Factor (BDNF) signaling in the brain (Mura, Moro, Patten and Carta, 2014). Several systematic reviews have analyzed the potential for physical exercise in the treatment of depressive disorders. The 2013 Cochrane Collaboration review on physical exercise for depression noted that it is more effective than a control intervention and comparable to psychological or antidepressant drug therapies (Cooney et al, 2013).

Sleep

A 2010 review of published scientific research suggested that exercise generally improves sleep for most people, and helps sleep disorders such as insomnia (Buman and King, 2010). The optimum time to exercise may be 4 to 8 hours before bedtime, though exercise at any time of day is beneficial, with the possible exception of heavy exercise taken shortly before bedtime, which may disturb sleep. According to Youngstedt (2005), exercise is the most recommended alternative to sleeping pills for resolving insomnia. Sleeping pills are more costly than to make time for a daily routine of staying fit, and may have dangerous side effects in the long run. Thus, Exercise can be a healthy, safe and inexpensive way to achieve more and better sleep (Youngstedt, 2005).

Weight control

Both diet and physical activity play a critical role in controlling your weight. You gain weight when the calories you burn, including those burned during physical activity, are less than the calories you eat or drink. When it comes to weight management, people vary greatly in how much physical activity they need. You may need to be more active than others to achieve or maintain a healthy weight (CDC, 2018).

Reduction of Type 2 Diabetes and Metabolic Syndrome

Regular physical activity can reduce your risk of developing type 2 diabetes and metabolic syndrome. Metabolic syndrome is a condition in which you have some combination of too much fat around the waist, high blood pressure, low HDL cholesterol, high triglycerides, or high blood sugar. Research shows that lower rates of these conditions are seen with 120 to 150 minutes (2 hours to 2 hours and 30 minutes) a week of at least moderate-intensity aerobic activity. And the more physical activity you do, the lower your risk will be (CDC, 2018)

Specification of Physical activities

According to WHO (2018), the following are the specifications for healthy physical activities in Adults;

Adults aged 18–64 years

- Should do at least 150 minutes of moderate-intensity physical activity throughout the week, or do at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity.
- For additional health benefits, adults should increase their moderate-intensity physical activity to 300 minutes per week, or equivalent.
- Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Adults aged 65 years and above

- Should do at least 150 minutes of moderate-intensity physical activity throughout the week, or at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity.
- For additional health benefits, they should increase moderate-intensity physical activity to 300 minutes per week, or equivalent.
- Those with poor mobility should perform physical activity to enhance balance and prevent falls, 3 or more days per week.
- Muscle-strengthening activities should be done involving major muscle groups, 2 or more days a week.

The intensity of different forms of physical activity varies between people. In order to be beneficial for cardiorespiratory health, all activity should be performed in bouts of at least 10 minutes duration (WHO, 2018)

Children and Adolescents

According to CDC (2008), the following are the specifications for healthy physical activities in children and Adolescents;

- Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily.

- **Aerobic:** Most of the 60 or more minutes a day should be either moderate- or vigorous- intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.

- **Muscle-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.

- **Bone-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.

It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety (CDC, 2008).

Nutrition and Wellbeing

Food is a basic and foundational part of our lives. But sometimes we act as if the link between a balanced diet and our health does not exist. Rather, we should look at it as a strong one. Study after study has shown that people who eat whole foods rich in nutrients enjoy their lives more, live longer, and are at a reduced risk of disease. By eating the right foods, reducing our intake of fat and sugar, and exercising portion control, we can also maintain a healthy body weight and avoid chronic diseases such as diabetes and heart disease. Here are some of the researched relationships between what we eat and our health:

Fruits and vegetables

Eating at least 400 g, or 5 portions, of fruits and vegetables per day reduces the risk of Non Communicable Diseases (WHO, 2003), and helps ensure an adequate daily intake of dietary fibre. As such, always include vegetables in your meals; eat fresh washed fruits and raw vegetables as snacks and always eat different varieties of fruits and vegetables. Examples of such include; apple, oranges, grape fruits, limes, bananas, mangoes, pears etc.

Fats

Reducing the amount of total fat intake to less than 30% of total energy intake is important most especially for an adult because it helps prevent unhealthy weight gain in the adult population (Hooper et al, 2012; WHO, 2003; FOA, 2010). Also, the risk of developing Non communicable diseases is lowered by reducing saturated fats to less than 10% of total energy intake, and trans fats to less than 1% of total energy intake, and replacing both with unsaturated fats (WHO, 2003; FOA, 2010). Fat intake can be reduced by: changing how you cook such as removing the fatty part of meat, using of vegetable oil (not animal oil) and palm oil, and boil, steam or bake

rather than fry. Also, avoid processed foods containing Tran's fats; and limiting the consumption of foods containing high amounts of saturated fats (e.g. cheese, ice cream, fatty meat) (WHO, 2003; FOA, 2010).

Salt (sodium)

Most people consume too much sodium through salt (corresponding to an average of 9–12 g of salt per day) and not enough potassium. High salt consumption and insufficient potassium intake (less than 3.5 g) contribute to high blood pressure, which in turn increases the risk of heart disease and stroke (WHO, 2010). 1.7 million Deaths could be prevented each year if people's salt consumption were reduced to the recommended level of less than 5 g per day (Mozaffarian et al 2014). People are often unaware of the amount of salt they consume. In many countries, most salt comes from processed foods (e.g. ready meals; processed meats like bacon, ham and salami; cheese and salty snacks) or from food consumed frequently in large amounts (e.g. bread). Salt is also added to food during cooking (e.g. bouillon, stock cubes, soy sauce and fish sauce) or at the table (e.g. table salt) (Mozaffarian et al 2014). Potassium, which can mitigate the negative effects of elevated sodium consumption on blood pressure, can be increased with consumption of fresh fruits and vegetables. Salt consumption can be reduced by not adding salt, soy sauce or fish sauce during the preparation of food, not having salt on the table, limiting the consumption of salty snacks and choosing products with lower sodium content (Mozaffarian et al 2014).

Sugars

The intake of free sugars should be reduced throughout the life course (WHO, 2015). Evidence indicates that in both adults and children, the intake of free sugars should be reduced to less than 10% of total energy intake (WHO, 2003; WHO, 2015), and that a reduction to less than 5% of total energy intake provides additional health benefits (WHO, 2015). Free sugars are all sugars added to foods or drinks by the manufacturer, cook or consumer, as well as sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. Consuming free sugars increases the risk of dental caries (tooth decay) (WHO, 2015). Excess calories from foods and drinks high in free sugars also contribute to unhealthy weight gain, which can lead to overweight and obesity. Sugars intake can be reduced by limiting the consumption of foods and drinks containing high amounts of sugars (e.g. sugar-sweetened beverages, sugary snacks and candies); and eating fresh fruits and raw vegetables as snacks instead of sugary snacks (WHO, 2015).

Specification of Healthy Nutrition

Consuming a healthy diet throughout the life course helps prevent malnutrition in all its forms as well as a range of non communicable diseases and conditions (WHO, 2015). But the increased production of processed food, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars or salt/sodium, and many do not eat enough fruit, vegetables and dietary fibre such as whole grains

For adults, a healthy diet contains: Fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice). At least 400 g (5 portions) of fruits and vegetables a day (WHO, 2003). Potatoes, sweet potatoes, cassava and other starchy roots are not classified as fruits or vegetables. Less than 10% of total energy intake from free sugars (WHO, 2003; WHO, 2015) which is equivalent to 50 g (or around 12 level teaspoons) for a person of healthy body weight consuming approximately 2000 calories per day, but ideally less than 5% of total energy intake for additional health benefits (WHO, 2015). Most free sugars are added to foods or drinks by the manufacturer, cook or consumer, and can also be found in sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. Less than 30% of total energy intake from fats (Hooper et al, 2012). Unsaturated fats (e.g. found in fish, avocado, nuts, sunflower, canola and olive oils) are preferable to saturated fats (e.g. found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard) (FAO, 2010). Industrial trans fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, cookies, margarines and spreads) are not part of a healthy diet. Less than 5 g of salt (equivalent to approximately 1 teaspoon) per day (WHO, 2012) and use iodized salt.

For infants and young children, in the first 2 years of a child's life, optimal nutrition fosters healthy growth and improves cognitive development (WHO, 2012). It also reduces the risk of becoming overweight or obese and developing NCDs later in life. Advice on a healthy diet for infants and children is similar to that for adults, but the following elements are also important; Infants should be breastfed exclusively during the first 6 months of life, Infants should be breastfed continuously until 2 years of age and beyond, From 6 months of age, breast milk should be complemented with a variety of adequate, safe and nutrient dense complementary foods. Salt and sugars should not be added to complementary foods at all (WHO, 2012).

Physical activity, Nutrition and Wellbeing

Eating a balanced diet and being physically active are

two of the most important things you can do to be and stay healthy at any age. A balanced diet includes eating the right amount of calories and nutrients to maintain a healthy weight. Physical activity is any form of movement that uses energy and People of all shapes and sizes and abilities can benefit from being physically active. Some physical activity is better than none and the more you do the more benefits you gain. Chief among the benefits of a healthful diet and physical activity is a reduction in the risk of obesity. Obesity is a major risk factor for several of today's most serious health conditions and chronic diseases, including high blood pressure, high cholesterol, diabetes, heart disease and stroke, and osteoarthritis. Obesity also has been linked to many forms of cancer (U.S Department of Health and Human Services, 2008).
Eating smart and being active have similar effects on our health, these include:

- Reduce the risk of chronic diseases, such as diabetes, heart disease, stroke, high blood pressure, stroke, and some cancers and associated disabilities
- Prevent weight gain and/or promote weight loss
- Improve overall well-being
- Strengthen muscles, bones, and joints
- Being active can also improve your personal appearance, encourage fun with family and friends, maintain the ability to live independently, and enhance fitness for sports.

CONCLUSION

It was discovered and concluded after review that Good nutrition; an adequate, well balanced diet combined with regular physical activity; is a cornerstone of good health. Everyone can gain the health benefits of physical activity regardless of age, ethnicity, shape or size. Poor nutrition can lead to reduced immunity, increased susceptibility to diseases, impaired physical and mental development, and reduced productivity.

RECOMMENDATIONS

Based on this study, the following recommendations were made;

- All adults should avoid inactivity and engage in physical activities as sedentary life style is not good for the overall health
- Consuming healthy diet throughout the life course is important because it helps to prevent malnutrition in all its forms as well as a range of non communicable diseases and conditions

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